



Last Update: January 10, 2022

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Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	12/22/25
Water Activity Name:	Seed Bank for Heat and Drought Tolerant Grains & Legumes
Grant Recipient:	Onward! Foundation "Seed & Food Security Fund"
Funding Source:	Southwest Basin Roundtable
Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for. (PLEASE DEFINE ALL ACRONYMS).)	
<p>The goal of this project is to adapt regional agriculture to hotter, drier conditions and conserve water through establishment of a Southwest Basin Seed Bank for open-pollinated drought-tolerant grain and legume seed for food and cover-crop uses.</p> <p>Carefully chosen open-pollinated plant varieties and on-going selection and improvement to adapt them to the Southwest Basin, are essential for addressing the challenges of less water, higher temperatures, more CO2, increased insect pressure, etc. This initiative will concentrate on increasing locally adapted seed supplies, establishing handling and storage infrastructure, developing educational materials and outreach to develop a network of growers.</p> <p>Organic drought hardy heritage grains and cover crops are in extremely short supply in the U.S. (Hubbard et al. State of Organic Seed, 2022) and there is a pressing need to continue to trial, screen, and increase promising varieties. There is also a need and opportunity to develop appropriate handling and storage infrastructure and identify mid-scale farmers to learn about these crops, adopt them and scale them up for local regional and national markets.</p> <p>\$100,000 in WSRF funds and \$222,300 in matching funds are requested for construction of temperature and humidity-controlled Seed House, stock seed program, educational materials and technical assistance to farmers.</p>	
Objectives: (List the objectives of the project. (PLEASE DEFINE ACRONYMS).)	



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- 1) Establish Southwest Basin Seed Bank
- 2) Build temperature & humidity-controlled Seed House
- 3) Expand producer network, develop and disseminate educational materials

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 1 - (Name) Southwest Basin Seed Bank
Description of Task: Establish Southwest Basin Seed Bank
<p>Open-pollinated (non-hybrid) varieties are best suited to respond to climate change, shifting water availability and improving the stability of low-input farming systems. Hybrid and transgenic seed production is expensive and specialized work and ultimately creates higher operating costs for farms, loss of farmer control and eliminates altogether the opportunity for plants to evolve and adapt to climate extremes and reduced water. The evolution and adaptation of drought tolerant, fast maturing, higher elevation maize by ancestral farmers in the Southwest is a prime example of the potential of open pollinated plants.</p> <p>Pueblo Seed & Food Company has already successfully increased seed of 17 promising drought- and heat-tolerant grain and legume varieties: Blue Beard Durum, Pueblo White Wheat, White Sonoran Wheat, Red Fife wheat, Black Einkorn, Spelt, Austrian Ancient Wheat, Khorosan, Wallis Rye, Purple Tibetan Purple Barley, Korjaj Sorghum, Dragon’s Claw Millet, Mayo Amaranth, White Sonoran Tepary Bean, Red Ripper Cow Pea, Whippoorwill Cow Pea, Bolita Bean and are positioned to quickly scale-up to production quantities of seed after one more growing season. All seed in this project will be public, open source, and non-proprietary varieties.</p> <p>The term “stock seed” refers to selected, foundation seed. From stock seed, supplies are increased as “production seed” to provide to other farmers for larger grow-outs. Our stock seed program will involve selecting for genetic purity and traits such as drought tolerance, heat tolerance, fast maturation, ability to thrive in low-input conditions, flavor, nutrition, and cultural relevance. Stock seed maintenance will also involve a new lot and record keeping systems and schedules for grow-outs as well as sturdy shelving, portable 2500 lb capacity buckhorn bins and a hermetic bagging system.</p> <p>In addition to seed increases and crop improvement work, we will continue to trial and evaluate other promising varieties for inclusion in our seed and food offering and experiment with interplanting combinations such as:</p> <p>Durum and Fava Beans (fall planted)</p>



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Tasks

- Culinary Barley and Chickpeas (spring and fall planted)
- Sorghum and Cow Peas (summer planted)
- Maize & Common Beans (spring planted)
- Rye and Vetch (fall planted)
- Wheat and Field Peas (spring and fall planted)
- Tepary Beans & Red Amaranth (summer planted)

Our location in McElmo Canyon, near Cortez, Colorado provides a unique production setting to perform this work: we are isolated from other farmers, which prevents/reduces cross pollination events; we are located at 5600' ft, which is a transition zone, in which we can produce hot, warm and some cool weather crops; we have senior water rights from Montezuma Valley Irrigation Company plus adjudicated water, enabling us to keep many seed lines in production even during dry years; we have very favorable natural seed storage conditions (low humidity and cold winters), and we are centrally located in the Four Corners region, making us accessible to various tribes and other farm communities in the upper Colorado River Basin.

We have had initial conversations with 5 interested contract producers and have begun working with 2 others. We envision growing stock and production seed at our farm to supply a network of ten growers and support early production through providing educational materials and technical assistance (see task 3 for more information). Upon successful harvest, crop samples will be tested at our seed house for disease, moisture, and protein. Pending satisfactory lab results, we will clean the seed, bag it, and compensate growers accordingly. Grains and legumes will then be sold to regional food and national seed customers and donated to local tribes through the Traditional Native American Farmers Association (TNAFA) as requested.

As part of this initiative, we will finalize an entity, such as the Montezuma Land Conservancy, to assume long-term stewardship of the seed bank. An agreement will be developed that details guidelines for handling and storage of the seed. For example, Pueblo Seed will transfer the collection at no cost; stock seed and production seed would be maintained separately in appropriate hermetically sealed containers and temperatures; all seed will be open pollinated varieties and reside in the public domain; active relations with tribes of the region for guaranteed access to culturally important seeds, as needed. Besides the field crops that are the focus of this project, we will include horticultural seed in the collection that share similar characteristics of flavor, nutrition, drought hardiness, heat tolerance, and cultural relevance, such as melons, watermelons, and chile peppers.

Please note that Pueblo Seed & Food Co. is a vertically integrated farm set-up as a two member LLC. Charitable and Educational work is conducted with fiscal sponsorship of Onward! A Legacy Foundation, within a "Seed & Food Security" Fund. Onward! Is located in Cortez, Colorado. FEIN 26-0045741

Method/Procedure:



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Tasks
Develop schedule of seed increase priorities for 2025-2026 Develop schedule of trial varieties and interplanting combinations for 2025-2026 Confirm growers and isolation distances for 2025-2026 Develop stock seed program and lot identification system Draft agreement with Montezuma Land Conservancy for long term stewardship of collection
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
<ul style="list-style-type: none"> • Establishment of Southwest Basin Seed Bank for drought and heat tolerant food and cover crops minimum of 10 species and 25 varieties added to bank in year 1 • Donations of drought tolerant seed to minimum of 25 Native American farmers through Traditional Native American Farmers Association
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
<ul style="list-style-type: none"> • Progress report • Final report • Southwest Basin Seed Bank initiated

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
<u>Task 2 - (Name) Southwest Basin Seed House</u>
Description of Task: Build temperature and humidity-controlled seed house
<p>The arid climate of Southwest Colorado is ideal for seed maturation, drying, handling and storage, but we lack a dedicated building for proper handling, testing and storage of agricultural seed. We propose to erect a 4500' square foot on-farm metal building, located at 17141 Road J, Cortez, Colorado, where we can conduct seed cleaning, laboratory testing and store diverse lots of grain. The proposed building will include loading dock and large door, open floor plan, 16' vertical space, small laboratory area and ~200 sq ft freezer for long-term stock seed storage. Astra Yah of Mancos has been identified as the preferred contractor for construction of the facility.</p> <p>We have already invested in a full food-grade seed cleaning line and basic laboratory (@ \$110,500), all of which are currently stored in our bakehouse in Cortez. Prior to installation of seed cleaning line, we will consult with master seed cleaner Klaas Martens and visit his operation in New York. Subsequently, Wintone Manufacturing, which made the seed cleaning equipment, will send one of its engineers to insure property installation of the line.</p>



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Tasks
<p>A forklift, pallet racking, 2500 lb capacity bins (for managing diversity), a hermetic bagging system, walk-in freezer, and laboratory equipment (for germination, disease and moisture testing) will be purchased and installed to facilitate professional handling and long term storage of the seed</p> <p>The Seed House, and its contents—the Southwest Basin Seed Bank, will be a unique public-facing community asset for the Southwest Basin that will provide long-term support for the agricultural and water communities, especially for the hot and dry years of the future. Due to its ability to produce food-ready grain and legumes, the Seed House will also benefit the region’s consumers.</p> <p><i>Establishment of Seed Bank for Heat and Drought Tolerant Grains & Legumes in the Southwest Basin</i> is a tier 1 project focusing on the needs of local agriculture. Specifically, in the Basin Implementation Plan, this project fits within Goal B “Support the Needs of Local Agriculture”, B2 “Support implementation of efficiency measures to maximize beneficial use and production”, and B5 “Recognize and support the benefits of agriculture to the environment and recreational activities” (BIP, page 22).</p>
<p>Method/Procedure:</p> <p>Agreement with Empire Electric Cooperative to upgrade electricity Contract with Astra Yah for construction of building Obtain construction permit from Montezuma County Consult with Klaas Martens regarding seed cleaning flow, techniques and maintenance Arrange for Wintone Manufacturing to over-see installation of seed cleaning line</p>
<p>Grantee Deliverable: (Describe the deliverable the grantee expects from this task)</p> <ul style="list-style-type: none"> • 4500 sq ft Seed House constructed • Seed cleaning line and laboratory installed and functional • Current seed collection safely stored in new facility
<p>CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)</p> <ul style="list-style-type: none"> • Progress report • Final report • Seed House established as long-term community asset for handling and storage of heat and drought tolerant grain and legume seed in Southwest Basin

Tasks
<p>Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)</p>
<p>Task 3 - (Name) Farmer Education in Southwest Basin</p>
<p>Description of Task: Expand producer network, develop and disseminate educational materials</p>



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Tasks

As long-time seed growers, we have built several relationships in Colorado and New Mexico with other producers to maintain isolation distances and increase seed production. In 2023-2024 we began reaching out to additional farmers (listed below) for larger grain and legume grows. Just as with the crops themselves, a diversity of scales, experience and ethnicities provide strength and stability to grower groups. All but one of these growers are located in the upper Colorado River basin.

- Dean & Susan Vidal, Brightwood Farm, Hermosa, Colorado (veteran farmers)
- David Harold, Tuxedo Farms, Delta, Colorado (mid-scale farmer)
- Horton Nash, New Agrarian Seed, Paonia Colorado (small-scale farmer)
- Trent Taylor, Hesperus, Colorado (mid-scale farmer)
- Billy Waschke, Dove Creek, Colorado (mid-scale farmer)
- Ben Goodrich, Hermosa, Colorado (beginning farmer)
- Ron Moya, Belen, New Mexico (Hispanic farmer)
- Byron Nelson, Shiprock, New Mexico (Navajo farmer)
- Mike Nolan, Mountain Roots Produce, Mancos, Colorado

These family farmers have expressed interest in expanding or beginning grain and legume production. Poor availability of appropriate, adapted seed and seed cleaning capacity have been major deterrents for producing the crop species that are the subject of this effort. Through offering production contracts and seed cleaning services, we will ultimately facilitate new markets for these farmers and significantly expand the availability of food and seed supplies for other farm and food business buyers.

Functional harvest and storage capabilities are also major challenges for smaller would-be grain growers in the Southwest basin. Fifteen new buckhorn bins @ 2500 lbs capacity ea. (for a total of 37,500 lbs. of diverse annual grain holding capacity) will be placed with partner growers to facilitate food and seed quality grain. Two combines will also be placed in the Hermosa and Mancos areas, respectively. The Hermosa combine was funded by Colorado Agriculture Water Alliance in 2024. Three Hermosa growers will concentrate on spelt and short-season maize. The Mancos combine will be dedicated to fava beans and field peas.

To support adoption of new crops, we will prepare 6 initial "farmer fact sheets" with support of New Mexico State University professor Dr. Richard Pratt, Southwest Grain Collaborative director, Dr. Tim Vos, Colorado State University Montezuma County Extension Director, Emily Lockard, and Maclaine Sorden of the Colorado Department of Agriculture and Jennifer Silverman of the Rodale Institute. The Farmer Fact Sheets are envisioned to be quick reference guides for farmers who are considering growing the crops in question. They will contain economic and agronomic information pertaining to each variety and will be professionally prepared with color photos to enhance interest and readability. Special attention will be devoted to appropriate irrigation of these crops, as many varieties perform better when not over-irrigated.

The Farmer Factsheets will be compiled into print and digital versions and will be provided free to farmers in Southwest Colorado. They will be publicized through key agencies and organizations such as CSU Montezuma County, Dolores County and La Plata County Cooperative Extension services, the Yellow Jacket Research Station, Dolores Water Conservation District, Montezuma Valley Irrigation Company, Montezuma Land Conservancy, the Southwest Basin Roundtable, Colorado Water Conservation Board, the Colorado Agriculture Water Alliance and Rodale Institute.



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Tasks	
Method/Procedure:	<p>Develop "farmer fact sheets" with support of Rodale Institute, Colorado and New Mexico State Universities</p> <p>Host field day June 29, 2025 to introduce Southwest Basin farmers to drought and heat tolerant grains and legumes</p> <p>Provide seed to area farmers for fall 2025 plants of drought hardy grains</p> <p>Provide technical assistance for field preparation, planting, irrigating and harvesting of drought hardy crops</p> <p>Provide combines for Hermosa and Mancos area grower groups</p>
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)	<ul style="list-style-type: none"> • 6 Farmer Fact Sheets for promising drought and heat tolerant crops varieties • 1 Farmer Field Day with minimum of 12 participants • Network of 10 farmers growing heat and drought tolerant grains and legumes • ~30,000 lbs of grains & legumes harvested in 2026
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)	<ul style="list-style-type: none"> • Progress report • Final report • Educational materials distributed to key agencies in the Southwest Basin • Press release recognizing funders, agency partners and participating farmers

Budget and Schedule
<p>Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.</p>

Reporting Requirements
<p>Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.</p>
<p>Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that:</p> <ul style="list-style-type: none"> • Summarizes the project and how the project was completed. • Describes any obstacles encountered, and how these obstacles were overcome.



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Reporting Requirements

- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

Payments

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

Performance measures for this contract shall include the following:

(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.

(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

NOTE TO APPLICANTS: Below are two "detailed budget" examples. Detailed budgets will vary between all projects, so these examples can be used as a helpful guide



Colorado Water Conservation Board
Detailed Budget Estimate

Date: 12/22/24
Water Activity Name: Establishment of Seed Bank for Heat and Drought Tolerant Grains & Legumes in the Southwest Basin
Grantee Name: Hobbs & Meyer, LLC Seed & Food Security Fund with Onward! Foundation

Task 1 - Establish Seed Bank

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Stock Seed Program	Lot system: MDU	\$ 100.00	100	\$ 10,000.00				\$ 10,000.00		10,000
								\$ -		
								\$ -		
								\$ -		
								\$ -		
								\$ -		
								\$ -		
								\$ -		
TOTAL								\$ 10,000.00		

Task 2 - Build Seed House

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Construction	Metal Building						\$ 225,000.00	\$ 225,000.00	100,000	125,000
Supplies	Fork Lift						\$ 15,000.00	\$ 15,000.00		
Supplies	Shelving						\$ 5,000.00	\$ 5,000.00		
Supplies	Bins						\$ 13,500.00	\$ 13,500.00		
Supplies	Hermetic Bagging						\$ 3,500.00	\$ 3,500.00		
Consultation	Klaas Martens	\$ 200.00	17.5	\$ 3,500.00			\$ 3,500.00	\$ 3,500.00		
Travel & Lodging	To NY						\$ 1,500.00	\$ 1,500.00		
TOTAL							\$ 265,000.00	\$ 265,000.00		

Task 3 - Producer Network & Education

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Education	Outreach & TA	\$ 100.00	100	\$ 10,000.00			\$ 10,000.00	\$ 10,000.00		10,000
Education	Fact Sheets						\$ 6,000.00	\$ 6,000.00		6,000
Education	Field Day						\$ 2,000.00	\$ 2,000.00		2,000
							\$ -	\$ -		
							\$ -	\$ -		
							\$ -	\$ -		
							\$ -	\$ -		
TOTAL							\$ 18,000.00	\$ 18,000.00		

Fiscal Sponsorship & Administration

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Project management @ 5%		\$ 100.00	146.5	\$ 14,650.00			\$ 14,650.00	\$ 14,650.00		\$ 14,650.00
Onward! Foundation @ 5%							\$ 14,650.00	\$ 14,650.00		\$ 14,650.00
							\$ -	\$ -		
							\$ -	\$ -		
							\$ -	\$ -		
							\$ -	\$ -		
TOTAL							\$ 29,300.00	\$ 29,300.00		

Budget Detail

Construction : 4500 sq ft metal Seed house @ \$41,111/sq foot=\$185,000; 200 Sq ft freezer for long-term storage and insect control in seed lots @ \$20,000; upgrade Empire electrical service @ \$20,000. <https://www.buildingsguide.com/metal-building-prices/>

Supplies: Bins, shelving, bagging system, forklift. Used forklift @ \$15,000; used pallet racking and shelving @ \$5000; Hermetic bagging system @ \$1500; 15 buckhorn bus + shipping @ \$900 each
<https://www.bulkcontainersexpress.com/product/OurGreen-57-c-45-y-74-ppp-30ft-Bulk-Container-With-Cover>
<https://farmprusa.com/collections/frontpage>

Stock Seed Program: Determine selection and improvement plans and schedules for key varieties; create new lot number system and testing procedures; Establish back-to seed collection of key varieties (seed bank); Set-up crop production guidelines for growers for 100 hours @ \$100/hour

Education (Producer Outreach & TA) Outreach, education and contacting with ~ 10 regional growers; 100 hours @ \$100/hour= \$10,000

Education (Farmer Fact Sheets) 6 Fact sheets at \$1000/each for preparation and printing, funded by Rodale Institute

Education (Field day) \$1500 Matching contribution from Colorado Department of Agriculture; \$500 in-kind match for 5 hours preparation time @ \$100/hour

Consultation: Klaas Martens to provide technical assistance for interplanting program and seed cleaning \$3500

Travel & Lodging: \$1500 1 visit to NY to consult with field crop and seed cleaning expert Klaas Martens

Fiscal Sponsorship: Onward! Foundation of Cortez @ 5% fiscal sponsor for our

Admin: 5% project management, administration and reporting for ~ 146.5 hours @ \$100/hour



Colorado Water Conservation Board

Water Supply Reserve Fund - Basin

Water Project Summary

Name of Applicant	Hobbs & Meyer, LLC	
Name of Water Project		
Basin Account Request Subtotal		\$100,000.00
Applicant Cash Match		\$0.00
Applicant In-Kind Match		\$500.00
Basin Requests		
Sources of Funding		

Grant Details

Water Project Justification

The goal of this project is to adapt regional agriculture to hotter and drier conditions through establishing seed supplies of open pollinated drought tolerant grains and legumes, engaging a group of farmers to grow them and developing educational materials

Applicant & Grantee Information

Name of Grantee: Hobbs & Meyer, LLC
 Mailing Address: 25 N. Beech St Cortez CO 81321

Organization Contact: Daniel Hobbs
 Position/Title: Owner/Operator
 Phone: (719) 250-9835
 Email: danghobbs@gmail.com

Organization Contact - Alternate: Nanna Meyer
 Position/Title:
 Phone:
 Email: nannalmmeyer@gmail.com

Grant Management Contact: Daniel Hobbs
 Position/Title: Owner/Operator
 Phone: (719) 250-9835
 Email: danghobbs@gmail.com

Grant Management Contact - Alternate: Nanna Meyer
 Position/Title:
 Phone:
 Email: nannalmmeyer@gmail.com

Agency Information

Agency Type: Other
 Current Assessment
 Number of Shareholders or Customers
 Number of Shares
 Number of Taps

Average Monthly Water Bill
Annual Water Delivery (acre-feet)

Description of Grantee/Applicant

Hobbs & Meyer, LLC DBA Pueblo Seed & Food Co (Pueblo Seed) is a vertically integrated family farm and food business located in Montezuma County Colorado. Educational & charitable work is conducted through a "Seed & Food Security Fund" through the Onward! Foundation

Location of Water Project

Latitude 0.000000
Longitude 0.000000
Lat Long Flag
Water Source
Basins
Counties
Districts

Water Project Overview

Major Water Use Type
Type of Water Project
Scheduled Start Date - Design 12/23/2024
Scheduled Start Date - Construction 12/23/2024
Description

Measurable Results

- 0 New Storage Created (acre-feet)
- 0 New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
- 0 Existing Storage Preserved or Enhanced (acre-feet)
- 0 New Storage Created (acre-feet)
- 0 Length of Stream Restored or Protected (linear feet)
- 0.00 Length of Pipe, Canal Built or Improved (linear feet)
- \$0 Efficiency Savings (dollars/year)
- 0 Efficiency Savings (acre-feet/year)
- 0 Area of Restored or Preserved Habitat (acres)
- 0 Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
- 0 Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
- 0 Number of Coloradans Impacted by Engagement Activity

Other
No additional measurable results provided

1. Identify the benefit(s) the project would provide. Are there multiple purposes (Agricultural, Environmental, Municipal, Industrial, Recreational) that the project would meet as defined in the Basin Implementation Plan? *Note: Projects that meet multiple purposes are strongly encouraged; however, this does not mean that a single purpose project would be rejected.*

This project addresses agricultural and environmental priorities by develop infrastructure and seed varieties in support of organic and alternative cropping systems that will conserve water and provide new streams of revenue for family farmers in the Southwest Basin.

2. Outline the steps needed for completion of the project. Are there permit issues that must be overcome? How will funds acquired in this process be used to accomplish the final goal?

This is a Tier 1 project. The primary steps for completion are preparing site for construction of seed house; construction of seed house and installation of seed cleaning line; preparation and publication of farmer fact sheets; planning and implementation of farmer field day; providing technical assistance to area farmers planting these crops; creating stock seed program; creating and signing MOU with Montezuma Land Conservancy for long-term stewardship of seed collection; seed donations to area tribes (Please see Scope of Work and Schedule/Budget for more information). SW Basin Roundtable Funds will be dedicated to seed house and will be matched by five other funding sources.

2. For prioritization of different proposals and assessment of the merits of the plan, can this project be physically built with this funding? Are further studies needed before actual construction is commenced (if the project anticipates construction)? Will these studies or additional steps delay the completion of the project substantially?

Yes. No further studies will be needed.

3. What is the ability of the sponsor to pay for the project? What actions have been taken to secure local funding? Are there supporting factors that affect the sponsor's ability to pay? Please provide a summary of the sponsor's financial condition such as customer fee structure, mill levy rate, or other applicable information that demonstrates the sponsor's ability to support the project. For example, has the sponsor increased assessments or rates to meet the project requirements in the past five years. Also, address how a loan could address the needs of the applicant instead of a grant?

The total budget to implement this project is \$322,300. \$100,000 or ~31% is requested from the Southwest Basin; \$221,800 is requested from five additional funding sources; and \$500 is provided as in-kind matching. (Please see Budget and Budget Detail for more information)

4. Which alternative sources of water or alternative management ideas have you considered? Are there water rights conflicts involving the source of water for the project? If yes, please explain.

Water management ideas in this case have to do with crops that use ~50% less water than alfalfa. By adopting them, farmers will conserve water in dry years. There are no water rights conflicts associated with this project.

5. Has there been public input solicited and is there local support for the project? Please provide a brief summary of public input if applicable.

There is broad support for this project. We have met individually with staff of the Colorado Water Conservation Board, the Colorado Department of Agriculture, Colorado State University, New Mexico State University, Rocky Mountain Farmers Union, Montezuma Orchard Restoration Project and the Montezuma Land Conservancy.

6. Is there opposition to the project? If there is opposition, how have those concerns been addressed? Identify any conflicts that may exist and how they will be addressed.

There is no known opposition to this project

7. Does this project affect the protection and conservation of the natural environment, including the protection of open space? If yes, please explain.

No

8. Are there impacts of the proposed action on other non-decreed values of the stream or river? Non-decreed values may include things such as non-decreed water rights or uses, recreational uses and soil/land conservation practices.

No

9. Does this project relate to a Stream Management Plan (SMP) or Needs Assessment for one of southwest Colorado river reaches? If yes, please explain and provide detailed evidence of how project will meet SMP goals or needs.

No

10. Does this project relate to local land use plans? If yes, please explain.

Yes. The Montezuma County Comprehensive Land Use plans, adopted in 1997, identifies Agricultural Viability as a major priority, but due to that the plan is now 27 years old, it appears to lack information,

especially pertaining to water resources. See Chapter 6 <https://montezumacounty.org/wp-content/uploads/2020/09/FL-Comp-plan.pdf> for more information

11. Does the project depend on a conversion of an agricultural water right? If yes, please explain.

No

12. Does the project support agricultural development or protect the existing agricultural economy? If yes, please explain.

Yes. This project is dedicated to producing and “banking” drought and heat tolerant seed crops so that farmers can thrive in new markets and survive in drier years. All crops in question are for higher value seed and food markets (as opposed to forage markets)

13. Does the project optimize existing water rights and/or existing infrastructure? If yes, please explain.

Yes. The crops in question can be produced on a dry-land basis, but will yield more if produced with some supplemental irrigation. However, given the drought-adapted nature of many of these crops, they are generally more nutritious when not over-watered.

14. Does the applicant anticipate future funding requests to complete the additional components of this project? Does the applicant have a long-term operation, maintenance, and replacement plan? When was the last update of the plan?

This project is designed for charitable support during the development stages and we do not anticipate additional investments will be needed. A market-based approach to contacting and re-selling food and seed crops will sustain the work on an on-going basis.

15. Does this project have an education component? If yes, please explain how it is consistent with the Roundtable’s Education Action Plan.

The core educational work of this effort are six farmer fact sheets, direct technical assistance to farmers for adoption of drought and heat-adapted specialty grain and legume crops, and a related farmer field day. Of special emphasis on the fact sheets and our technical assistance, is appropriate irrigation of the crops that are the focus of this proposal, as many perform better when not over-irrigated.

The fact sheets will be sent to the original group of farmers we have been in contact with as well as presented at our June 2025 field day. PDF and/or print versions will also be provided to key agencies and organizations such as CSU Montezuma County, Dolores County and La Plata County Cooperative Extension services, the Yellow Jacket Research Station. Dolores Water Conservation District, Montezuma Valley Irrigation Company, Montezuma Land Conservancy, the Southwest Basin Roundtable, Colorado Water Conservation Board, the Colorado Agriculture Water Alliance and Rodale Institute.

This work is consistent with the Southwest Basin’s education plans (BIP, p. 54) and we commit to providing all educational materials, reports and communications freely with the Southwest Basin Roundtable for the on-going benefit of the physiographic region and its diverse communities.

Consumptive Water Use Reduction in the Southwest Basin Through Establishment of Stock Seed Program for Heat and Drought Tolerant Grains & Legumes for Regional and National Seed and Food Markets

Summary

The goal of this project is to reduce consumptive agricultural water use in the Four Corners area of the upper Colorado River Basin through establishing seed supplies of open pollinated drought hardy grains and legumes, engaging a group of farmers to grow them, and building regional and national markets.

We expect a market-based approach of paying farmers “premium wholesale” prices for their food-grade grain and legume crops will demonstrate measurable and sustainable water conservation over time. All of the crops included in this project use significantly less water than alfalfa and, are, in fact, generally more versatile and nutritious when not over-irrigated.

The objectives are:

- 1) Establish stock seed program
- 2) Build a temperature controlled “seedhouse”
- 3) Expand network of farmers & collect data
- 4) Market seed and food to regional and national customers

Carefully chosen open-pollinated plant varieties and on-going selection and improvement to adapt them to the Colorado Plateau, are essential for addressing the challenges of less water, higher temperatures, more CO₂, increased insect pressure, etc. This initiative will concentrate on increasing locally adapted seed supplies, contracting production, and cleaning, storing and distributing drought tolerant and nutritious grain and legume crops. All crops in question will be grown for food and cover crop seed markets (and not as animal fodder).

Background

Hobbs & Meyer, LLC DBA Pueblo Seed & Food Co (Pueblo Seed) is a vertically integrated family farm located in Southwestern Colorado. We have been certified organic since 2001 by the Colorado Department of Agriculture and specialize in open pollinated vegetable seeds, varietal garlic and heritage grains and legumes on ~25 irrigated acres.

During the COVID-19 pandemic we designed and began producing a line of 7 value added grain products and working towards opening our own bakehouse. In 2021 we purchased a 5300 square foot commercial building in downtown Cortez. In 2022-2023 we purchased a food grade seed cleaning line, stone mill and other grain processing equipment for making products and providing seed cleaning services to partner growers. During 2023 we increased small amounts of seed of 10 species of drought and heat tolerant grains and legumes.

Value Proposition

Organic drought hardy heritage grains and cover crops are in extremely short supply in the U.S. (Hubbard et al. State of Organic Seed, 2022) and we are seeking to establish

Pueblo Seed & Food Co. as a unique and key organic supplier of drought tolerant food and seed crops such as finger millets, grain sorghums, culinary ryes, culinary barleys, select wheats, flour maize, cow peas, tepary beans and other legumes. Most of these crops, consume half or less water than alfalfa.

An estimated 46% of water diverted from the Colorado River is used for alfalfa and other cattle feed. <https://www.latimes.com/environment/story/2024-03-28/alfalfa-hay-beef-water-colorado-river> According to a Colorado State University Extension publication estimating consumptive water use in Fruita, Colorado, Alfalfa uses 44" of water per year, grain sorghum 24.5" and winter wheat 19" (J. Schneekloth and A. Andales, 2017). While elevation also impacts consumptive use, with more careful selection of varieties and crop improvement, along with cover cropping and other conservation agricultural practices, consumptive water use can be further reduced.

We have already successfully increased seed of 17 promising drought and heat tolerant grain and legume varieties that use half or less the water of Alfalfa: Blue Beard Durum, Pueblo White Wheat, White Sonoran Wheat, Red Fife wheat, Black Einkorn, Spelt, Austrian Ancient Wheat, Khorosan, Wallis Rye, Purple Tibetan Purple Barley, Korjaj Sorghum, Dragon's Claw Millet, Mayo Amaranth, White Sonoran Tepary Bean, Red Ripper Cow Pea, Whippoorwill Cow Pea, Bolita Bean and are positioned to quickly scale-up to production quantities of seed after one more growing season. We have had at least initial conversations with 7 interested contract producers. We envision growing stock seed on ~25 acres at our farm in McElmo canyon, near Cortez, Colorado to supply to our contracted growers. Upon successful harvest, crop samples will be tested at our seedhouse for disease, moisture, and protein. Pending satisfactory lab results, we will clean the seed, bag it, and compensate growers accordingly. Grains and legumes will then be sold to regional food and national seed customers.

The marketability of these crops will hinge on lower consumptive water use, flavor and nutrition, and involvement of independent family farms (see objective #4 below for more information)

Objective #1 Establish stock seed program

Open pollinated (non-hybrid) varieties are best suited to respond to climate change, shifting water availability and stability of low-input farm systems. Hybrid and transgenic seed production is expensive and specialized work and ultimately creates higher operating costs for farms, loss of farmer control and eliminates altogether the opportunity for plants to evolve and adapt to climate extremes and reduced water. The evolution and adaptation of drought tolerant, fast maturing, higher elevation maize by ancestral farmers in the Southwest is a prime example of the potential of open pollinated plants.

Our stock seed program will involve selecting for genetic purity and traits such as drought tolerance, heat tolerance, fast maturation, ability to thrive in low-input conditions, flavor, nutrition, cultural relevance and producing enough seed for production grow-outs by partner farms. Stock seed maintenance will also involve new lot and record keeping systems and schedules for grow-outs. In addition to the crop improvement work, we will

continue to trial and evaluate other promising varieties for inclusion in our seed and food offering and experiment with interplanting combinations such as:

Durum and Fava Beans (fall planted)
Culinary Barley and Chickpeas (spring and fall planted)
Sorghum and Cow Peas (summer planted)
Maize & Common Beans (spring planted)
Rye and Vetch (fall planted)
Wheat and Field Peas (spring and fall planted)
Tepary Beans & Red Amaranth (summer planted)

Our location in McElmo Canyon, near Cortez, Colorado provides a unique production setting to perform this work: we are isolated from other farmers, which prevents/reduces cross pollination events; we are located at 5600' ft, which is a transition zone, in which we can produce hot, warm and some cool weather crops; we have senior water rights from Montezuma Valley Irrigation Company plus adjudicated water, enabling us to keep many seed lines in production even during dry years; and we are centrally located in the Four Corners region, making us accessible to various tribes and other farm communities in the upper Colorado River Basin.

As part of this initiative, we will also work to identify an appropriate entity to steward this germplasm collection when we are no longer able to do so.

Objective #2 Build a temperature controlled “seedhouse”

The arid climate of Southwest Colorado is ideal for seed maturation, drying, handling and storage, but we lack a dedicated building for proper handling, testing and storage. We propose to erect a 5000' square foot on-farm metal building where we can conduct seed cleaning, laboratory testing and store diverse lots of grain. We have already invested in a full food-grade seed cleaning line and basic laboratory, all of which are currently stored in our bakehouse in Cortez. The proposed building will include loading dock and large door, open floor plan, small laboratory area and ~200 sq ft freezer for long-term stock seed storage. By moving seed cleaning equipment out of the Cortez bakehouse, we will also gain an additional 2000 sq ft of storage (for bagged market-ready products, which will be shipped from the Cortez location). Prior to construction, we will consult with master seed cleaner Klaas Martens and visit his operation in New York.

Objective #3 Expand network of farmers & collect data

As long-time seed growers, we have built several relationships in Colorado and New Mexico with other producers to maintain isolation distances and increase seed production. In 2023-2024 we began reaching out to additional farmers (listed below) for larger grain and legume grows. Just as with the crops themselves, a diversity of scales, experience and ethnicities provide strength and stability to grower groups. All but one of these growers are located in the upper Colorado River basin.

Dean Vidal, Brightwood Farm, Hesperus, Colorado (veteran farmer)
David Harold, Tuxedo Farms, Delta, Colorado (mid-scale farmer)

Horton Nash, New Agrarian Seed, Paonia Colorado (small-scale farmer)

Trent Taylor, Hesperus, Colorado (mid-scale farmer)

Billy Waschke, Dove Creek, Colorado (mid-scale farmer)

Kaleigh Campbell, Cortez, Colorado (beginning female farmer)

Farmers of the Four Corners Food Coalition, Cortez, Colorado (4 indigenous farmers)

Ron Moya, Belen, New Mexico (Hispanic farmer)

Byron Nelson, Shiprock, New Mexico (Navajo farmer)

These family farmers have expressed interest in expanding or beginning grain and legume production. Poor availability of appropriate, adapted seed and seed cleaning capacity have been major deterrents for producing the crop species that are the subject of this effort. Through offering production contracts and seed cleaning services, we will facilitate new markets for these farmers and significantly expand the availability of food and seed supplies for other farm and food business buyers.

Collaborating growers devoting acreage to crops in this proposal, will prioritize our grow-outs instead of alfalfa, field corn and other feed crops. We will explore with colleagues at Colorado State University and New Mexico State University whether support can be provided to measure consumptive water use and soil moisture during the course of this project and beyond. If not, we will expand the budget of this initiative so sub-contract professionals to work with contract growers to monitor consumptive use and soil moisture. Data pertaining to reduction in consumptive water use will be published in "farmer fact sheets" and in report summaries to key agencies and organizations such as Dolores Water Conservation District, Montezuma Valley Irrigation Company, Montezuma and Conservancy, the Southwest Basin Roundtable, Colorado Water Conservation Board, and Colorado Agriculture Water Alliance.

Objective #4 Market seed and food to regional and national customers

We have sufficient supplies of certain grains to begin scaling up production immediately; for other varieties we will need one more year of increases. We expect to be able to replace ~50 acres of alfalfa and feed corn with less consumptive and higher value food crops in year 1-- 2025. In subsequent years, this number can grow substantially, depending on market demand.

We have long-term relationships with six national seed companies and five bio-regional seed companies: Fedco, High Mowing Seeds, Southern Exposure Seed Exchange, Territorial Seed Company, Renne's Garden Seed and Botanical Interests, Siskiyou Seed, Restoration Seed, Plant Good Seed, High Desert Seed and Wood Prairie Farm. We will offer bulk cover crop and grain seed to these companies and will seek others as supply allows. We also believe there may be a unique opportunity with smaller, high value packages of cover crop seed for garden centers. Finally, seed will be sold via mail order to individual farmers and gardeners through our existing website www.farmdirectseed.com and locally at our farm store in Cortez.

For grain food markets, we will continue to mill and use ~500 lbs of flour per week for our Cortez bakehouse and otherwise will primarily concentrate on our long-term relationships with Whole Foods Market, Natural Grocers, La Montañita Co-op and regional artisan bakeries in the Colorado and New Mexico. We will sell the food grains and legumes in our value-added wholesale product lines (cookies and porridges), bulk in the form of whole berries, peas and beans, and as flour. A heritage grain pancake mix is one of the new products we anticipate adding.

The food products will benefit from the Colorado Grain Chain co-brand, which will also identify us and our collaborating farmers as located in the Colorado River Watershed. <https://www.coloradograinchain.com/page/co-grown>

Our competitive advantages for these markets will include highlighting our seed adaptation work, water conservation, flavor and nutrition and network of independent family farms.

Budget

Seedhouse	195,000
Bins, shelving, forklift	32000
Stock Seed Program	10000
Producer Network	5000
Marketing Materials	12000
Consultation	4500
Travel	1500
	260,000

Budget Detail

Seedhouse: 5000 sq ft metal structure @ \$32/sq foot=\$160,000; 200 Sq ft freezer for long-term storage and insect control in seed lots @ \$15,000; upgrade electrical service @ \$20,000

Bins, shelving, forklift: Used fork lift @ \$15,000; used pallet racking @ \$3500; 15 buckhorn bins @ \$900 Each

Stock Seed Program: Determine selection and improvement plans and schedules for key varieties; create new lot number system, testing procedures, and back-up seed collection of key varieties; Set-up crop production guidelines for growers for 100 hours @ \$100/hour

Producer Network: Outreach and contracting with 10-15 regional growers; incorporation of producer group. 50 hours @ \$100/hour= \$5000

Marketing Materials: Design and development of marketing materials for 30 hours \$100/hour=@3000; print materials @ \$2500; promotional video @ \$3500; display ads @ \$3000

Consultation: Klaas Martens to provide technical assistance for interplanting program and seed cleaning. \$3500

Travel & lodging: \$1500 1 visit to NY to consult with field crop and seed cleaning expert Klaas Martens



December 22, 2024

To: Mr. Edward Tollen
Chair, Southwest Basin Roundtable

RE: Letter of support for "Establishment of Seed Bank for Heat and Drought Tolerant Grains & Legumes in the Southwest Basin" project

Dear Mr. Tollen,

Please support the proposal submitted by Dan Hobbs and Nana Meyer of Pueblo Seed and Food.

Their proposal establishes a key element of a local Southwest supply chain for locally adapted, environmentally smart, nutritionally excellent and delicious grains for human consumption. We as individual farmers can't begin to stand up this kind of capacity and are grateful for Dan and Nana's tireless efforts in support of our region. There is strength in us all, together, in improving the quality of local grains for human health, for continuing to improve soil quality with grains in rotation with our year round vegetable production, and in showing others that there is a strong local market for flavorful, responsibly grown grains.

Brightwood Farm, LLC is an active partner with Pueblo Seed & Food Company for the production of certified organic, heritage and drought tolerant small grain seed crops. In 2024 they provided us with seed to grow Sonoran white wheat, lent us threshing equipment, and are pursuing placing a serviceable combine in our community so that several local growers and scale-up production for food and seed markets. The scale of our market garden operation lends itself to grain-for-seed production, with a little extra for local bakers to experiment with, rather than higher volume broad-acre production. We see a groundswell of artisan bakers in SW Colorado, making the best of their art with available, underwhelming commodity grains. We as grain growers and farmer-teachers can help our local artisans put smiles on their customers' faces with products from superior tasting grain. The demand for local grains will grow as our bakers see the potential for surprising their customers through flavor. They can also share the story of environmentally resilient production. And as the market calls for local grain, local forage farmers can see the opportunity to transition some or all of their acreage out of alfalfa and hay into higher net income, more environmentally sustainable grain production. Brightwood Farm, through Pueblo Seed and Food, Co. can help meet the anticipated growth in demand for certified organic seed and can help coach local farmers in organic, low water use production from tillage through threshing.

We have a decades long history of certified organic specialty crop production, field rotation, and seed production. The inclusion of grain in our system is opening a new market for us, while improving our soils in a “Third Plate” kind of way (author Dan Barber). We also have an ongoing relation with rising agroecology and environmental studies students at Fort Lewis College in Durango and will show and explain the ecological and water conservation possibilities-in-practice or grains with each semester’s field trips to our farm, noting sponsorship and intent. The grains we are working with can be minimally irrigated, thereby saving precious water for our other high value crops. This will be critical as we continue to adapt to and improve our farm’s resiliency in dry years. From reading the by-laws of the Southwest Basin Roundtable, it is evident you share these values and practices and so we hope you will support this innovative work that promises to benefit farmers, watersheds and the health of the public of the Southwest Basin.

Thank you and best regards,

Dean and Susan Vidal
Brightwood Farm, LLC
Hermosa (Durango), Colorado
33054 Highway 550
Durango, CO 81301



December 20, 2024

To: Mr. Edward Tollen
Chair, Southwest Basin Roundtable

RE: Letter of support for “Establishment of Seed Bank for Heat and Drought Tolerant Grains & Legumes in the Southwest Basin” project

Dear Mr. Tollen,

The Rodale Institute is delighted to support and partner with Pueblo Seed & Food Company’s “Seed and Food Security” initiative to establish a seed bank for heat and drought tolerant grains and legumes in the Southwest Basin. Specifically, we plan to support the farmer field day planned for June 29, 2025 and preparation of six farmer fact sheets. The goal of this work is to educate producers and encourage adoption of food and seed crops that lead to reduced consumptive use of irrigation water.

Project leaders Dan Hobbs and Nanna Meyer are established leaders in organic agriculture, and they are uniquely positioned to introduce innovative cropping systems in the Southwest Basin and beyond.

We strongly encourage funding their proposal and hope that we can all work together in 2025

Sincerely,

A handwritten signature in black ink, appearing to read 'Cate Batson Baril', is written over a large, faint, yellow watermark of a plant root system.

Cate Batson Baril
Markets Coordinator | Rodale Institute



December 20, 2024

To: Mr. Edward Tollen

Chair, Southwest Basin Roundtable

RE: Letter of support for "Establishment of Seed Bank for Heat and Drought Tolerant Grains & Legumes in the Southwest Basin" project

Dear Mr. Tollen,

Montezuma Orchard Restoration Project strongly endorses the work of Pueblo Seed & Food to establish a seed bank and handling infrastructure to support production of drought hardy food and seed varieties. This work will contribute significantly to a more stable regional food system, especially in times of water shortages. It is also consistent with the Roundtable's stated priorities of promoting the protection, conservation, and use of water in the Southwest Basin Roundtable's area and promoting the socio-economic sustainability of the Southwest Basins Roundtable area.

Finally, we are impressed in the long-term vision of making the seed resources an on-going public benefit by insuring tribal access and proposed stewardship of the collection by Montezuma Land Conservancy.

Sincerely,

A handwritten signature in black ink, appearing to read "Adalyn Schuenemeyer", with a long horizontal line extending to the right.

Adalyn Schuenemeyer

CoDirector

Montezuma Orchard Restoration Project

(970) 565-3099

