

NRCS CONSERVATION INNOVATION GRANT

Final Report

August 2016

Grant Award Number 69-3A75-14-229

Grantee Entity Name: Alabama's Mountains, Rivers and Valleys RC&D

Project Title: Rainwater Collection, Storage, and Use on Small Farms

Agreement Number: 69-A75-14-229

Project Director: Jay Grantland

Phone: 256 773 8495

Address: 5514 Hwy 31 S. Hartselle, Al 35640

Period Covered by Report: April 2015 to August 2016

A. Project Status

1. AMRVRC&D has designed and installed eighteen complete on farm rainwater collection systems across the 8 county project area of north Alabama. Here is a list of the completed systems:

Rhonda Riley, 1301 Covenant Road NE Cullman, Al 35055. FSA Farm# 9665

Summer McCreless, 1850 Co Rd 236 Town Creek, Al 35672 FSA Farm#1790

Lee McBride, 460 CR 1390 Falkville, Al 35622. FSA Farm# 3729

Marguerite McClintock, 220 Old Hwy 431 S. Owens Cross Roads, Al 35763 FSA Farm# 9180

Tune Farm, 85 Old Hwy 31 Falkville, Al 35622 FSA Farm#4390

Dwight Landsell, 14827 Main St. Town Creek, Al 35672 FSA Farm# 3748

Paul Stover, 549 Hammond Lane Toney, Al 35773 FSA Farm# 8730

J.D. Booker, 26290 Johnson Lane Toney, Al 35773 FSA Farm# 7767

Gavin Moy, 437 Chaffin Rd Horton, Al 35980 FSA Farm# 2489

Pic Roberson, 11255 Lucas Ferry Rd Athens, Al 35611 FSA Farm# 3150

Julie Wittschen, 1397 Charity Lane Hazel Green, Al. 35750 FSA Farm# 1688

Jimmy Osborne, 252 Red Oak Road Somerville, Al. 35670 FSA Farm# 3489

Stoney Beavers, 416 Swan Bridge Road Hayden, Al. 35079 FSA Farm# 7000

Jessie Murphy, 624 Kirby Bridge Road Danville, Al. 35619 FSA Farm# 4017

Charles Johnson, 2589 Co Rd 20 Trenton, Al. 35774 FSA Farm# 9909

Graham Farm, 420 Co Rd 27 Estill Fork, Al. 35745 FSA Farm# 2109

Mark Young, 1631 Pines Road Somerville, Al 35670 FSA Farm# 5458

Randy Kraft, 1130 Co Rd 1711 Holly Pond, Al. 35083 FSA Farm# 5755

Twenty-two education programs on on-farm rain catch systems have been completed. These are as follows:

Jan 15th 2015 Town Creek, with SWCD. 31 people attended this education effort.

April 15th 2015 Dekalb County, Al. With SWCD. 10 people attended this education effort.

May 15th 2015 Jackson County, Al. With AU Extension. 5 people attended this education effort.

May 28th 2015 Lawrence County, Al. With Ag Center. 20 people attended this education effort.

May 29th 2015 Cullman County, Al. Echota facility. 9 people attended this education effort.

June 6th 2015 Cullman County, Al. Williams Farm. 22 people attended this education effort.

June 9th 2015 Morgan County, Al. With AU Extension. 14 people attended this education effort.

June 13th 2015 Limestone County, Al. Pic Roberson Farm. 19 people attended this education effort.

June 25th 2015 Madison County, Al. With Al A&M Agribition. 23 people attended this education effort.

June 27th 2015 Madison County, Al. Prevost Farm. 14 people attended this education effort.

July 8th 2015 Cullman County, Al. Cullman Agriplex. 15 people attended this education effort.

Oct 8th 2015 Cullman County, Al. Riverview Farm. 134 people attended this education effort.

Oct 17th 2015 Morgan County, Al. Echota Tribe Center. 47 people attended this education effort.

Oct 20th 2015 Madison County, Al. Alabama A&M University. 34 people attended this education effort.

Feb 10th 2016 Morgan County, Al. Auburn Extension System. 48 people attended this education effort.

Feb 11th 2016 Marshall County, Al. Auburn Extension System. 36 people attended this education effort.

May 9th 2016 Lawrence County, Al. Al Co-op Extension System. 9 people attended this education effort.

May 14th 2016 Madison County, Al. Al Co-op Extension System. 21 people attended this education effort.

May 25th 2016 Madison County, Al, Madison Co. NRCS-SWCD. 18 people attended this education effort.

June 1st 2016 Madison County, Al. Auburn Extension System. 19 people attended this education effort.

June 18th 2016 Morgan County, Al. Alabama A&M University. 20 people attended this education effort.

August 24th 2016 Morgan County, Al. Mark Young Farm. 11 people attended this education effort.

The **average** cost per unit (Rain Catch System) per farm is as follows:

Two Tank System

Tanks = \$1,480

Shipping = \$100

Guttering = \$320

Connectors and downspouts = \$52

Strapping, screws, screen = \$15

Tank delivery @ \$1.50/mile = \$150

Travel time @ \$50/hour = \$100

Installation @ 50/hour = \$150

Total = \$2,307

RC&D Cost (75%) = \$1730

Farmer Cost (25%) = \$577

One Tank System

Tank = \$740

Shipping = \$50

Guttering = \$240

Connectors and downspouts = \$25

Strapping, screws, screen = \$7

Tank delivery @ \$1.50/mile = \$75

Travel time @ \$50/hour = \$50

Installation @ 50/hour = \$100

Total = \$1,287

RC&D Cost (75%) = \$965

Farmer Cost (25%) = \$322

2. No problems or delays were noted.
3. There were no cost overruns for this project.
4. No time extensions were needed for this project.
5. No changes to the projects objectives, methods or timeline were needed.
6. AMRVRC&D has learned that this project is easy to design and install on most all farm structures and can effectively capture and convey rainwater for use where needed in a small farm setting.
7. In the future AMRVRC&D will continue to monitor the rain catch systems to evaluate the effectiveness of this project.

B. Project Results

1. Preliminary results show that NRCS could use the alternative guttering designed by this project in other NRCS farm programs used to capture rain water.
2. No products, software tools or technologies have been developed by this project for transfer.
3. No new data or research needs have been identified in the implementation of this project.
4. All activities associated with this project are being documented and will be featured on the AMRVRC&D website.

C. EQUIP Requirements

1. EQUIP Eligible Producers

Rhonda Riley, 1301 Covenant Road NE Cullman, Al 35055. FSA Farm# 9665

Summer McCreless, 1850 Co Rd 236 Town Creek, Al 35672 FSA Farm#1790

Lee McBride, 460 CR 1390 Falkville, Al 35622. FSA Farm# 3729

Marguerite McClintock, 220 Old Hwy 431 S. Owens Cross Roads, Al 35763 FSA Farm# 9180

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No project recipients have received any direct or indirect payments. All costs for each projects components and installation are incurred by AMRVRC&D. Each producer/recipient has provided adequate in-kind match for each rain catch system installed.

2. Each producer/recipient is in compliance with the adjusted gross income (AGI) and highly-erodible lands and wetlands conservation (HEL/WC) compliance provisions of the farm bill. These compliance forms are on file.

D. Final Budget

Budget Item	Federal Share	AMRV-RC&D Share	Farmers Non-Financial Match
Personnel	\$5,740	\$8,380	
Fringe	\$1,033	\$1,620	
Installation			\$7,000 (\$438 per farm)
Travel	\$1,500	\$1,000	
Supplies	\$19,227 Budgeted \$16,931.59 Spent \$2,295.41 Under	\$15,000	
Indirect	\$2,500		
Travel to NRCS Designated Events	-\$3,000 *No NRCS charges		
Budgeted	\$33,000	\$26,000	\$7,000
Expenditures	\$27,704.59	\$26,000	\$7,000
Balance	\$5295.41	\$0.00	\$0.00

*No NRCS charges were incurred in the delivery of this grant project.

Project Results

This project has shown that low cost options are available for rain catch systems in rural small farm operations. These systems could easily be included in the NRCS Cost-Share Program for farmers needing alternative watering sources. Some of the key points for using these types of rain catch systems are as follows:

Low Cost

Low Tech...No Engineering

Addresses Water Quality

Addresses Water Quantity

Excellent for New and Beginning Small Farmers and Underserved

Farmers or any small contractor can easily install these systems

DESIGNING...

Water Conservation Calculator

INSTRUCTIONS
Set Size of Roof in top window.
Read Gallons of Water Collected and Water Storage Capacity Needed to Maximize Amount of Water Collected Based on Quantity of Water Used.
ICA=Insufficient collection area

Size of Roof Collection Area	800 Square Feet
Roof area = sq. ft. of floor under roof.	
Gallons of Water from 1 inch of rain	496 Gallons
Water Storage Needed Based on annual rainfall between 45 and 55 inches and use of water	
Average use of 1,000 gallons per month year round	700
Year-round collection, using water April-September	13,100 Gallons
Gallons of Storage Capacity Needed	5,000

MAKE A RAIN BARREL.

www.accs.edu/waterwheels

ALABAMA COOPERATIVE Extension SYSTEM
Alabama A&M and Auburn Universities

Each Farmer received a rainfall conversion calculator to monitor the amount of rain water available.



Before and after pics of installed system.

FARMER COSTS...TIME/LABOR/MATERIALS FOR PAD



Farmers were responsible for preparing level pads for the tanks to sit on.



SIX INCH DOUBLE WALL PIPE



Double wall pipe was used for guttering as there is no fascia boards on barns to attach conventional guttering.

CONNECTING, STRAPPING AND FALL



Standard metal strapping is used to attach the pipe guttering to the roofline.

HOSE CONNECTION OR SUBMERGIBLE PUMPS



A standard garden hose faucet is installed in the drain bung on each tank. Submersible pumps can also be used to convey the rain water.



Graham Farm Rain Catch System, Estill Fork, Al. FSA Farm# 2109



Rhonda Riley Rain Catch System, Cullman, Al. FSA Farm# 9665



J.D. Booker Rain Catch System Toney, Al. FSA Farm# 7767



Lee McBride Rain Catch System. Falkville Al. Farm # 3729



Pic Roberson Rain Catch System. Athens Al. Farm # 3150



Marguerite McClintock Rain Catch System, Owens Cross Roads, Al 35763 FSA Farm# 9180



Gavin Moy Rain Catch System, Horton, Al 35980 FSA Farm# 2489



Charles Johnson Rain Catch System, Trenton, Al. 35774 FSA Farm# 9909



Rain Catch Education Field Day at the Pic Roberson Farm.



FIELD DAYS



Rain Catch Education Field Day with Robert Spencer, Alabama A&M University.

Forms:
Application

**5514 U.S. Highway
Hartselle, Alabama 35640
256-773-8495
Mike.roden@amrvrcd.com
Rainwater Collection System Application**

Name: _____

County: _____

Address: _____

Best Phone Number _____

Email Address _____

Do You Have a Farm Number from USDA and are EQIP Eligible? Yes ___ No ___ Don't Know ___

(Attach Documentation from USDA-FSA..where you get your farm number)

Size of the roof for the rainwater collection:

Length & width _____

Height from the ground to the roof _____

Depth of the roof tin corrugations _____

Does the building already have gutters Yes ___ No ___

Send pictures of the building(s) via email (jay.grantland@amrvrcd.com or US Mail. Send picture of farm or map of the farm if possible.

For what would you use the rainwater?

Livestock: (enter number of animals)

Goats _____

Sheep _____

Cattle _____

Free Ranging Chickens _____

Rabbits _____

Other (list) _____

Vegetables _____

Organic or natural? Yes ___ No ___

Are you:

1) A new & beginning farmer (farming less than 10 years) _____

2) American Indian (documentation not required) _____

3) Military Veteran _____

4) Limited Resource Farmer _____ (Making less than \$23,500) _____

5) Minority? Yes ___ No ___

Cooperative Agreement

Small Farmers Rainwater Catchment Cooperative Agreement

This Agreement is made and entered into on _____ by and between the Alabama's Mountains, Rivers and Valleys Resource Conservation and Development Councils, Inc. (hereinafter called the AMRV-RC&D), and _____ (hereinafter called the Farmer).

The Purpose of this agreement is to establish and demonstrate a rainwater collection system on a small farm.

The AMRV-RC&D & the Farmer deem it mutually advantageous to cooperate in this project, and hereby agree as follows.

1. The AMRV-RC&D Agrees:

- A. To provide the site plan/ design and cost estimate for the project.
- B. To provide 75% of the cost as per the design and cost estimate as agreed to with the farmerincluding the water storage tank(s), selected guttering, filters, and required plumbing connections if needed and according to the plan.....
- C. To install the system with assistance of the farmer.
- D. To plan and deliver educational training for other farmers at the rainwater collection site when cleared and coordinated with the Farmer.
- E. To provide other assistance in planning and implementation as requested, needed, available, and agreed to by the AMRV-RC&D.

2. The Farmer Agrees:

- A. To provide 25% cash or in kind match with proof of the time, materials or equipment used for the project as per the design to the AMRV-RC&D Council
- B. To provide a level pad for the placement of the tanks and assistance to install the system including the installation of gutters, conveyance pipe, tanks, and associated needs.
- C. **To seal, lock or otherwise secure the lid(s) to the tanks to avoid the possibility of small children or animals falling into the tank.**
- D. Not to set the tank(s) more than sixteen inches above ground level.
- E. To hold the AMRV-RC&D, employees and Board harmless in the event of an accident, injury or death associated with the installation and/or operation of the Rainwater Catchment System.
- F. To allow the AMRV-RC&D permission and to coordinate access to host field days to educate other farmers on the technique.
- G. To practice reasonable maintenance and operation of the Rainwater Catchment System for a minimum of two years. If the system is not being used due to the Farmer's changing of plans or the lack of reasonable maintenance within the two year period the AMRV-RC&D reserves the right to remove the equipment.

A. Sign & document:

- a. **To return this signed COOPERATIVE AGREEMENT WITHIN 10 DAYS.**

- b. Give credit to the AMRV-RC&D on press releases & publications.
- c. Call or contact Executive Director Mike Roden @256-773-8495 or email to mike.rodén@amvr.cd.com with questions relative to this effort.

B. Provide the AMRV-RC&D with a Federal Tax ID number _____.

3. It is mutually agreed:

- A. This agreement shall become effective on the date appearing in the first paragraph.
- B. This agreement may be revised upon mutual consent of both parties.
- C. The Council may take appropriate action to ensure compliance with the terms of this agreement, which may include termination, suspension, or other remedies deemed necessary.

Signatures

Mike Roden AMRV-RC&D
Executive Director

Date

Farmer

Date

By signing this agreement the recipient assures the Alabama's Mountains, Rivers and Valleys RC&D Council, Inc. that the program or activities provided for under this agreement will be conducted in compliance with all allocable Federal Civil Rights laws, rules, regulations, and policies.

"All programs and assistance of the RC&D Council are available without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. RC&D is an equal opportunity provider and employer."

In-Kind Tracking Form



**Rainwater Collection
Farmer's In-Kind Match**

1) Planning/ Design Assistance: _____ # Hours _____ @ \$20.50 per Hour

_____ **Total Planning Costs**

2) Pad Preparation:

- _____ Materials
- _____ Cross Ties or blocks
- _____ Gravel
- _____ Other
- _____ Tractor Time ___ hr @ _____ per hr
- _____ Labor _____ # hours x \$20.50

_____ **Total Pad Costs**

3) Installation Assistance:

- _____ Materials
- _____ Equipment
- _____ Labor ___ Hrs @ \$20.50 per hr

_____ **Total Installation Costs**

4) Field Day Planning _____ # Hours _____ @ \$20.50 per Hour

5) Field Day program delivery _____ # Hours _____ @ \$20.50 per Hour

_____ # Hours _____ @ \$20.50 per Hour

_____ # Hours _____ @ \$20.50 per Hour

_____ # Hours _____ @ \$20.50 per Hour

6) Field day expenses _____

_____ **Total Field Day Costs**

_____ **TOTAL IN-KIND COSTS FOR THE SYSTEM**

Farmer

Date

AMRV-RC&D

Date

Rainwater Collection Job Sheet/ Invoice

Farmer Name: _____

Location of Farm: _____

Date Delivered or Installed _____

_____ Roundtrip Mileage from RC&D Office Beginning Odometer _____ Ending _____

Total Mileage _____ @ \$1.50/mile _____

_____ Roundtrip Total Travel Time _____ @ \$25/Hr /person x two

_____ Arrival Time @ Farm _____ Departure Time _____

Total Installation Hours _____ @ \$25/ Hour x two _____

_____ Number of Tanks _____ Size _____ @ \$790 each _____ *

_____ Number of feet/joints of Guttering _____ @ \$80 per joint _____

_____ Number of Joint Connectors _____ @ \$8 each _____

_____ Number of End or Down Spouts _____ @ \$15 each _____

_____ Number of Reducers _____ @ \$10 each _____

_____ Number of Flexible connectors _____ @ \$6 each _____

_____ Other Strapping & screws \$5.00 _____

_____ **TOTAL COST**

_____ RC&D 75% of the Total Costs

_____ Farmer 25% of the Total Cost

_____ AMRV-RC&D Date

Make checks to: AMRV-RC&D

Send to: 5514 U.S. Hwy 31 So.

Hartselle, Alabama 35640