Environment and Natural Resources Trust Fund
2016 Request for Proposals (RFP)

Project Title: **ENRTF ID: 109-C**

Teaching High School Students to Build Soil Health

Category: C. Environmental Education

Total Project Budget: $ 160,000

Proposed Project Time Period for the Funding Requested: 3 years, July 2016 to June 2019

Summary:

Existing Environmental Science curriculum will prepare Minnesota high school FFA students to implement soil health principles in agriculture.

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Sponsoring Organization: Sustainable Farming Association of Minnesota

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Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

No map required.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____%

PROJECT TITLE: Teaching High School Students to Build Soil Health

I. PROJECT STATEMENT

Existing Environmental Science curriculum will prepare Minnesota high school FFA students to implement soil health principles in agriculture.

Farming practices that focus on building soil health can produce food profitably, protect natural resources, and improve important ecological functions. There are currently no opportunities for high school students to learn about the impact farming practices can have on soil health the environment in general. Deep Roots is an existing educational curriculum developed by the Sustainable Farming Association (SFA), which teaches students the science behind these practices and prepares them to actively farm, and inspire others to farm sustainably. We will teach the Deep Roots Curriculum to high school FFA students in 15 school districts in a 3 year program. The goals of the project are to improve soil health and water quality throughout Minnesota. This is accomplished by training the next generation of farmers in how to build soil health, which is defined as the ability of the soil to capture and store precipitation, and to cycle nutrients. Specifically, Deep Roots Curriculum teaches the importance of the following:

- keeping the soil covered,
- keeping a living root in the soil most of the time,
- minimizing soil disturbance,
- diversifying crops rotations,
- integrating livestock into the cropping system

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Teach Deep Roots Curriculum to FFA Students **Budget: $180,000**

Deep Roots has a long track record of success. We have effectively trained dozens of beginning farmers and are prepared to launch this important curriculum in the Minnesota Public School system. We will take the existing Deep Roots program into schools through FFA instructors. We will partner with Minnesota FFA Instructors in Princeton and Staples in the first year as a pilot. We will then expand the program to 5 more schools in year 2, and 8 more in year 3, for a total of 15 schools. We will prepare students to apply these principles on their own farms in the future, and to inspire others to do the same. We will monitor the soil health building activity of these students after completing the curriculum to learn how these principles are adopted, or employed in their own farming or learning situations.

Deep Roots was first taught at M-State in Fergus Falls as a 34 credit Associates Degree Program. It has been modified and scaled appropriately to fit into a high school context. Students completing the Deep Roots curriculum will be prepared to farm from a scientific and environmental perspective. They will also be prepared to take on further environmental science studies in college.

Courses will be initially taught by Deep Roots instructors, Dr. Sue Wika, Dr. Tom Prieve, and Kent Solberg. In years 2 and 3 FFA instructors will partner with Deep Roots Instructors to deliver the curriculum.

Outcome	Completion Date
1. Teach 35 high school students with classroom and laboratory instruction in Princeton and Staples FFA programs with Deep Roots Curriculum.	*June 2017*
2. Teach 85 high school students with classroom and laboratory instruction in Princeton and Staples FFA programs with Deep Roots Curriculum.	*June 2018*
3. Teach 85 high school students with classroom and laboratory instruction in Princeton and Staples FFA programs with Deep Roots Curriculum.	*June 2019*
4. One hundred sixty (80%) of these students will reach age-appropriate mastery of the soil health principles based on evaluation scores.	*June 2019*
5. Using follow up surveys, we will see 12 of these students enroll in further study of soil health building training. (4-year college, or beginning farmer training).	*June 2019*
6. Using follow up surveys, we will see 10 of these students apply soil health building principles on their own farming operations.	*June 2019*

III. PROJECT STRATEGY

A. Project Team/Partners

Project Team:
Receiving Funds: SFA staff: John Mesko, Project Lead, Sue Wika, Design Leader, Tom Prieve, Kent Solberg, Instructors

Not Receiving Funds: Minnesota Agriculture Water Resource Council: Green Star Farms Monitoring.
NRCS State Soil Scientist John Beck, Consulting
Kristi Storbakken, Princeton FFA Instructor

B. Project Impact and Long-Term Strategy

The impact of this project is

- an increase in the number of high school students in Minnesota trained in soil health building farming practices.
- An increase in the number of FFA instructors with experience using the Deep Roots Curriculum.

The long-term strategy of this program is that by expanding the number of high school students familiar and knowledgeable regarding soil health building practices, we will see a long term improvement in farm profitability, soil and water quality and ecosystem services provided by farms which are implementing these soil health building practices.

C. Timeline Requirements

This project is a 36 month project.

2016 Detailed Project Budget

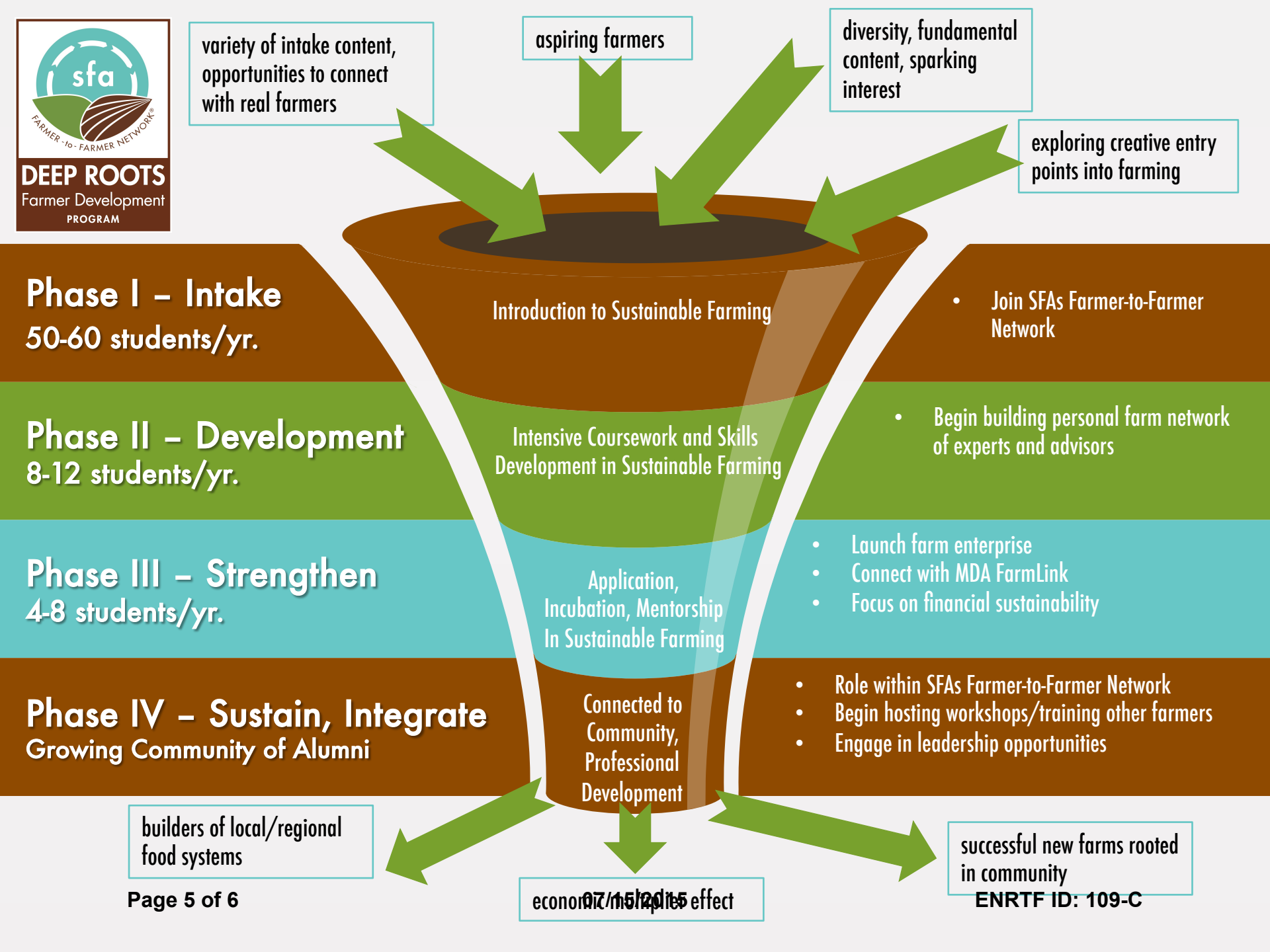
Project Title: Teaching High School Students to Build Soil Health

IV. TOTAL ENRTF REQUEST BUDGET 3 years

BUDGET ITEM *(See "Guidance on Allowable Expenses", p. 13)*	**AMOUNT**
Personnel:	$ 140,000
John Mesko, Project Director, 9% FTE = $6,667/yr, 100% salary, 0% benefits. = $20,000	
Kent Solberg, Instructor, 40% FTE = $20,000/yr, 100% salary, 0% benefits. = $60,000	
Dr. Sue Wika, Instructor/Design Leader, 25%% FTE = $20,000/yr, 100% salary, 0% benefits. =	
Travel: 100 trips for instructional staff per year for 3 years with an average RT of 118 miles = 11,800 miles per year @$0.565/ mile = $20,000	$ 20,000
Additional Budget Items:	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 160,000

V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ To Be Applied To Project During Project Period: *N/A*		*Indicate: Secured or Pending*
Other State $ To Be Applied To Project During Project Period: *N/A*	$ -	*Indicate: Secured or Pending*
In-kind Services To Be Applied To Project During Project Period: *Sustainable Farming Association volunteer hours donated by SFA member farmers for field trips for Deep Roots Students. $20 per volunteer hour, 2,000 hours donated annually from member farms.*	$ 40,000	*Secured*
Funding History: *N/A*	$ -	
Remaining $ From Current ENRTF Appropriation: *N/A*	$ -	*Indicate: Unspent? Legally Obligated? Other?*


DEEP ROOTS
Farmer Development
PROGRAM
variety of intake content, opportunities to connect with real farmers
aspiring farmers
diversity, fundamental content, sparking interest
exploring creative entry points into farming
Phase I – Intake
50-60 students/yr.
Introduction to Sustainable Farming
• Join SFAs Farmer-to-Farmer Network
Phase II – Development
8-12 students/yr.
Intensive Coursework and Skills Development in Sustainable Farming
• Begin building personal farm network of experts and advisors
Phase III – Strengthen
4-8 students/yr.
Application, Incubation, Mentorship In Sustainable Farming
• Launch farm enterprise
• Connect with MDA FarmLink
• Focus on financial sustainability
Phase IV – Sustain, Integrate
Growing Community of Alumni
Connected to Community, Professional Development
• Role within SFAs Farmer-to-Farmer Network
• Begin hosting workshops/training other farmers
• Engage in leadership opportunities
builders of local/regional food systems
economic multiplier effect
successful new farms rooted in community

07/15/2015

John Mesko

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Experience

Sustainable Farming Association — 2009 - Present

- Planned and executed large scale educational events including annual conferences with national level speakers, state wide grazing conferences and farmer – consumer networking sessions.
- Mentored new and beginning farmers as well as provided resources to consumers and students seeking greater understanding of sustainable agriculture.
- Lectured in college classes about the impact of sustainable farming and local food on the rural economy in Minnesota.
- Developed and implemented a statewide educational program for new and beginning farmers, direct marketers and underserved populations.

University of Northwestern (St. Paul) — 2013 - Present

- Adjunct Professor, Environmental Science, Adult Undergraduate Program. Teaching introductory Environmental Science Classes for adults pursuing undergraduate degrees.
- Blended Curriculum Design. Environmental Science.

Lighthouse Farm, Princeton, MN — 2006 - Present

- Successfully developed a direct market for Grass-Fed Beef, Lamb and Pastured Pork, marketing to over 100 families and 4 restaurants.
- Developed business plans, marketing plans, contracts, advertising and communications materials. Maintained website, Facebook pages, Twitter and e-newsletter applications.
- Established farm infrastructure to facilitate educational programs and tours; developed educational curriculum and instructional DVDs, targeted at new and beginning farmers.

Purdue Extension – Greenfield, IN — 2001 - 2006

- Taught and administered classes at The Alliance for Community Education, a community college focused on extending educational opportunities to non-traditional students.
- Developed and implemented regional adult education program focusing on small scale agriculture, local food production and direct marketing; established on-site teaching garden.
- Hired and managed a faculty and support staff of 9 for the purpose of carrying out the educational mission of Purdue University.
- Initiated and implemented a solid waste management and education program among county and city government agencies and offices resulting in a reduction of landfill waste.

Mycogen Seeds / Dow Agrosciences — 1995 - 2001

- Hired, managed, trained and evaluated the Eastern Corn belt Agronomy Services Team,
- Conducted field research to evaluate new product agronomic traits, managed trait database and prepared technical information for sales literature and communication pieces.

Education

Purdue University – West Lafayette, IN

Bachelor of Science, Agronomy, 1988; Master of Science, Agricultural Economics, 1991