

SUSTAINABLE AGRICULTURE EDUCATION

Assignment Ideas



Greetings, SARE teachers!

Wondering how to incorporate activities and assignments into your classroom that will help students engage with the farm you're working with for this project? The following ideas are designed to help students get to know the farm, help the farm connect with the community, and prepare for the final products associated with the project.

Each project has its own specific topic – soil health, integrated pest management, or raising livestock, just to name a few. These assignments don't try to address the content associated with each topic. Rather, they are writing and discussion activities try to get students thinking about the project as a whole and what impact their work will have in the broader community.

Your class will eventually produce a final project that summarizes the student-led work with the farm and results from the research they have completed. The traditional final product associated with SARE grants is a fact sheet, which is a 1-2 page document that translates SARE research into digestible information that farmers and educators can use. But this isn't the only format that you can choose – a PowerPoint slide deck, a resource toolkit, or an informational video are also options. You can find examples online at the SARE Learning Center:

<https://www.sare.org/Learning-Center>

Several teachers have pointed out that they want more ways to keep students engaged with the project between farm visits and innovative ways to incorporate this project into their day-to-day classroom work. Since this project blends two very different settings, field trips to the farm and classroom instruction, some interdisciplinary thinking has come in to play to blend the two. Through the experience of carrying out these projects, we hope to create tools that other teachers can use to make land-based learning part of their students' experience.

Though not outlined as a specific assignment below, asking students to keep a journal of their activities – farm visits, research, ideas, and progress, is one way to track student understanding and attach points to their participation in the project.

These ideas are the seeds for lesson plans. You should adapt them to your situation and improve them according to your age group and classroom management style. If you'd like to share a lesson or activity that you've done with your students, please send it to Abbey at palmerab@msu.edu

Draw It

15 minutes

Before students have been to the farm or even met the farmer, you can start finding out how much they know about the topic at hand by asking them to draw their interpretation of basic farm elements. This gives you a preview of their existing knowledge. Looking over these student drawings can help farmers plan their first visit to the classroom – though it’s also an activity that the farmers themselves can carry out in the classroom as an icebreaker, as the only materials required are a pencil and paper. This quick activity can be an interesting (and funny) way to start talking about farm sustainability concepts. Use at the very beginning as an introduction to the topic. Credit for this activity goes to Gierke Blueberry Farm and Chassell School.

Think about what you know about a farm’s products or sustainability issue, and ask students to draw an item or situation from the farm (5 minutes).

Sustainability issue: A farm wants to better support native pollinators of blueberries.

Ask students to draw a blueberry flower.

Discussion: It’s difficult for a honeybee to fit into a blueberry flower, which makes native pollinators more effective in increasing blueberry crop yields.

Sustainability issue: A farm wants to create a new composting system.

Ask students to draw a compost pile.

Discussion: A compost pile depends on a food web of visible and invisible creatures, who turn vegetable waste or manure into a valuable soil amendment.

Sustainability issue: Every day on a large dairy, many bull (male) calves are born. What do you think the farm does with these animals, which cannot be milked?

Ask students to draw what could happen to the bull calves.

Discussion: The majority of bull calves do not generate revenue for a dairy farm in most circumstances, though they could become breeding stock for sale, food for zoo animals, composted waste, or meat for a direct market.

Lead a discussion based on student drawings (10 minutes). It can be amusing to draw an amalgamation of the student answers on the board as they share their responses, which gives a visual point of reference as you or the farmer can then present an accurate rendition of the item or situation, and explain its importance to the farm’s systems

Social Media Posts

15 minutes, plus farm tour

Students can be asked to use their phones for educational purposes, such as documenting their experiences on the farm or helping to promote the farm. Credit for this activity goes to Taiga Farm and Luther L. Wright High School.

Prior to visiting the farm, prepare students with the idea that while they are there, they will be asked to take a picture and create a post for social media (15 minutes). Brainstorm a list of qualities that make for a good social media post on the board.

- What makes you click on a post?
- How do different social media platforms lend themselves to different kinds of posts?
- Take a quick poll – which forms of social media do students think the farm likely utilizes the most? (You can take this opportunity to visit farm social media pages to get a sense of how active and what kinds of posts the farm already does. This can be a point of conversation between students and the farmer later for questions about who the farmer wishes to market to on social media and whether the farmer is reaching the desired audience.)

Ask students to use the following tags in the posts they create:

#studentsUPonthefarm

#learnlocal

@North Central Region SARE

@MSU.UPREC – Michigan State University Upper Peninsula Research and Extension Center

@msunorthfarm – The North Farm

@msueup – MSU Extension for the UP

@?? - tag your school's facebook page

@?? – tag the farm business that you're working with for the project

For more information about how to connect with SARE on social media, check out their website:

<https://www.sare.org/Newsroom/SARE-and-Social-Media>

While at the farm, ask students to take a photo that they can use to create a post to promote the farm or an upcoming event at the farm. Lay out the rule that if they are using their phones inappropriately, you will take them away. Bringing a small bucket or bag for phones that are not being used properly at the farm tour can be a useful tool.

Ya Gotta Name the Baby

25-35 minutes

What if you had to design a billboard for your sustainable agriculture project? What would you call the project? Naming your specific project in just a short phrase can help you explain the project to other people, the media, and it will be useful when you need to design a final project. This activity uses a mind map to visualize the class' understanding of the project, then divides students into groups to work on coming up with descriptive, memorable titles.

Create a mind map for the project with the entire class (10 minutes). For tips on mind mapping, go to <https://www.mindmapping.com/> Begin by drawing an image associated with the farm in the center of the board. Explain that you want to make a mind map of the ideas associated with your sustainable agriculture project. Then, begin brainstorming related concepts to make lines that radiate out from the image in the center. Ask students questions like, "What is the issue are we helping the farm solve with this project?" and "What else is that issue related to on the farm? In our community?" The final mind map could have several branches that relate to farm sustainability, like the ecosystem, financial viability, or the farm's future improvements. As you're wrapping up with this large group brainstorming session, ask if anyone can summarize the project down to just one short phrase.

Next, direct students to work in small groups on creating a title that can encapsulate the core issue that they are working on with the farm (5-8 minutes). Each group must create a title in 8 words or less. Ask each group to write their title on the board in a list.

Workshop the titles that groups come up with based on the following criteria (10 plus minutes). In the workshop, emphasize the collaborative nature of the project and see if you can guide the discussion toward a combination of titles that recognizes the input of many groups.

- Does the title clearly describe the project?
- Would this title pique the interest of a casual community member? Of someone in the farming community?
- Does the title help others understand the importance of the issue that the class is working on with the farm?
- Does this title cast the farm and the issue in a positive light?
- Is this title memorable?

This title can be used for promotion of the project and in final project that will be produced to describe the project findings at the end.

An optional addition to this is to ask the class to design a sign that can be posted at the farm. Large vinyl banners can usually be printed for less than \$100 and would be an allowable expense under your funding.

Get in the News!

25-35 minutes to introduce, interviews and assignments follow

Students can research, interview, and write content to submit to a variety of outlets based on their project. Getting the word out about this innovative partnership is good press for the farm, the school, and gives the students a chance to highlight their work.

Getting a local journalist involved in this process might help; there's always the possibility of directing students toward work that will let them try out functioning as "support staff" for a newspaper. If that's the route you want to go, start by having students write a basic press release and send it to your local paper.

Examples of a SARE press release and a newspaper article follow the lesson. Remember that any information that is written as a summary throughout the process will help build the final project.

This activity could be carried out as a large group, with different students contributing different pieces, as a group project where several groups write several articles on different topics, or as an extra credit assignment for one student to complete on their own. Decide which format would work best for your group. If it's a whole class activity, the following introduction could be a starting point. If it's a one student activity, the following lists can be used as an assignment sheet.

Introduce the assignment of writing a news story or press release on your sustainable agriculture project (25-35 minutes).

Make a list of potential article topics or angles based on your sustainable agriculture project:

- The farm that you are working with – what is special about this farm?
- How does the sustainability issue you are addressing as a class affect other industries/sectors? How does the way your farm is dealing with this issue set this farm apart?
- Why is your class project unique, as compared to other school activities?
- Are there upcoming events, like a field day or farm open house, that you'd like to promote?
- Other ideas?

Determine what kind of article you'd like to produce – A profile with photographs? An invitation to an event?

What tasks will we need to carry out? How will we delegate these tasks to individuals or teams?

- Come up with interview questions
- Interview farmers, teacher, MSU Extension, other students
- Research sustainability issue for background
- Write content around research/quotes
- Write introduction and conclusion
- Edit content and put article together
- Take or ask for photos
- Write captions to photos

Determine the best length for the piece – 500 words is a good starting place.

Determine a deadline.

Brainstorm a list of potential places to publish:

- School newsletter
- Local newspaper
- Send as a press release to local TV stations to get news coverage
- UP Ag Connections (MSU's regional newsletter for the UP) – contact Michelle at colema98@msu.edu
- The Plowshare (The UP Food Exchange's UP-wide newsletter on local food and farming news) – contact Sarah at smonte@marquettefood.coop

- North Central SARE Newsletter -- <https://www.northcentralsare.org/Educational-Resources/Newsletters/North-Central-SARE-Newsletter-Archives>
- Other ideas?

Example Press Release

For Immediate Release

June 23, 2016

Contact:

Joe Smith
Smith Farms
(453) 546-8989
joesmith@aol.com

Building Better Soils with Compost *An On-Farm Demonstration*

Improve the health of your soil and grow better vegetables by learning how to make compost and apply it on your farm or garden. Smith Farms will teach current and aspiring farmers and home gardeners what they need to know about creating the best compost. The presentation and tour will show examples of healthy soil and vegetables at their on-farm event “Growing Beautiful Vegetables in Healthy Soil.” This demonstration, hosted by owner Joe Smith, will be held at Smith Farms, 54 Taylor Road, Raleigh North Carolina, on August 1, 2016. From 9 am to noon, participants will hear from Joe about the best practices he has learned for making and applying compost from on-farm resources, and then walk through fields showing the difference between vegetables grown with compost and those grown without.

After the presentation and field tour, a lunch featuring locally-grown foods will be served, with Joe available for more question and answer. The fee for the field day and lunch is \$25. Reservations are required by July 25. Registration and payment information can be found at joesmithfarms/event.

In 2014 Joe received a Farmer-Rancher grant of \$13,200 from the Southern SARE to determine what materials from his farm worked best in the compost he made. He also divided up his vegetable fields to determine the best rates of application. At the end of this project, he found three common materials that made good, clean compost and determined the best rate of application. He will share his findings at this event. More information about Joe’s project can be found in the SARE database of projects, mysare.sare.org/sare_project/FS14-000.

Joe, who has been farming for 13 years, says “I am excited to share what I’ve learned about growing better vegetables, improving my soil, and using what would have been waste products with my fellow farmers. To see the difference in the quality of both my produce and soil is truly amazing.”



This event is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture through the Southern Sustainable Agriculture Research and Education program.

Example Newspaper Article

Land-Based Learning Centers:

Schools, Students and Farms Working Together

SARE Grant offers multi-generational approach to promoting sustainable agriculture in the Upper Peninsula

Upper Peninsula hay is in demand in other parts of the country, as our cool, moist conditions offer an ideal climate for lush grass growth. After years of cutting hay without a sustainable plan for regenerating that ground, hay yields begin to drop and farmers stand to make less money from the same ground.

In a classroom at Superior Central, high school students in Tim Bliss' environmental science class are gathered to learn more about the complicated relationship between the soil, hay, and the local economy from farmers. "The life in the soil and a person's health are similar, they both need proper nutrition and the right amount of exercise," explains farmer Ben Bartlett. He and his wife Denise manage Log Cabin Livestock, a longstanding sheep operation just a few miles from the school, where many of the students have seen the couple moving their animals from one grazing location to the next using border collies and ATVs. "If you're tired, you can drink coffee to do the work you need to do. But after the caffeine wears off, you crash. When the soil life is stressed, you can apply synthetic fertilizer to temporarily boost yields – but it's not a long-term solution. You can't live on coffee."

Ben and Denise have been studying the relationship between soil health, economies, and climate change in New Zealand, Australia, and South Africa in the context of regenerative agriculture. Regenerative agriculture emphasizes practices that increase the biodiversity of soil life, and research is mounting to support the idea that diverse soil delivers essential ecosystem services. It makes nutrient-dense plants that nourish animals, creates drought-protected soil that can retain water like a sponge, and perhaps most importantly, sequesters carbon to slow climate change. The Bartletts utilize carefully planned grazing on their pastures to improve soil health, but some locations are too remote to move the sheep. In some cases, the hay fields are too remote even for the regular application of manure or fertilizer. So the Bartletts approached students with the question: how can we regenerate this soil in the most practical way – for our farm as a business, and for the environment? With their help, students are designing a project to test different approaches to improving haying ground that has been over-utilized and undernourished.

This project is one of seven across the U.P. funded by a Sustainable Agriculture Research and Education Grant and carried out by Michigan State University Upper Peninsula Research and Extension Center. A team in each intermediate school district of the U.P. got together this spring to identify an on-farm project that is student-driven and place-based. Each team consists of a farm, a secondary education teacher and students, and MSU Extension educators. This project offers students the opportunity to tackle real-world issues in agriculture in a living classroom – a local farm – and also to follow the project through the summer via internships.

"This is our first learning opportunity to actually face a problem that a full-size farm is experiencing, rather than on a test plot here at the school. As we got into it more and more, we found out that a lot of farms are facing this across the Midwest," says Tim Bliss, the science teacher whose interest in place-based learning has supported a hoop house that supplies the cafeteria with salad greens, an aquaponics lab that grows fish, and a

woodworking class that builds boats each year. This opportunity to use their environmental science class to learn about farming has students engaged with real-world problems. Superior Central student Josh Kulik explained that though their immediate research is about hay fields, “It’s important to keep soil healthy to keep yields high and have generational farms that can continue from one generation to the next. It doesn’t matter what you’re growing – the soil science applies to our food, too. Even if this is hay for livestock, you can follow that all the way up the food chain to us.”

When it comes to experience with soils in the U.P., MSU Extension Educator Jim Isleib, another member of the project team, is tough to beat. He has spent his career interpreting soil test results for farmers and gardeners all over the U.P. From teaching students how to set up test plots and the proper way to take soil tests, to offering information about the price of fertilizer and lime, Isleib has been a key resource for students as they designed the project. “It’s giving them a look at basic agricultural research and giving them a glimpse of the challenges that farmers face. They’re getting a look at production agriculture and agricultural science,” says Isleib. One of the aims of the project is to inform students about careers in agriculture – whether that’s as a farmer, researcher, or educator.

The next generation of agriculturalists will confront the question of soil health – with their livelihood and a well-nourished populace depending on their ability to innovate and understand how farming practices affect the land. Getting students interested in careers in science and agriculture may not be easy, but farmer Denise Bartlett decided to engage in this project to simply “Ask the students. They are the ones we need to be talking with about how to accomplish the next generation of agriculture.”

Abbey Palmer, Education Coordinator

Michigan State University Upper Peninsula Research and Extension Center - North Farm

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