



GREEN FUND

Sustainability Through Student Innovation

Project Application

Green Fund Mission Statement: “The NAU Green Fund promotes student participation in and provides funding for projects that reduce NAU’s negative impact on the environment and create a culture of sustainability on-campus.”

Requirements for Funding:

- The project must be implemented on campus.
- The person submitting the project must be a NAU student, faculty, or staff member.
- Projects must provide all necessary documents, letters of support, and authorizations prior to submission.
- The Green Fund distributes funding on a **reimbursement basis**. Project teams should partner with an administrative office to provide upfront funding for the project. Once the project has been successfully completed, the Green Fund will reimburse the administrative partner.
- All project applications should be submitted to greenfund@nau.edu for review.

Disclaimer: All applications will go through a comprehensive vetting process. We highly recommend meeting with a Green Fund Committee member prior to submitting the application. The Green Fund Committee member will assist you with every step of writing your project application. If your project is approved, you may be asked to provide more detailed information regarding specific deliverables. The Green Fund is not responsible for acquiring the necessary permits, permissions, or approvals for a project, although we are happy to assist with this process if needed. Additionally, the Green Fund does not provide any ongoing maintenance costs. A sponsoring department must take responsibility for operations and management.

Review Process: Upon project application submission, the Green Fund will review your project within two weeks. At this time, the Green Fund will provide comments on the project. Incomplete applications will not be reviewed until all components are submitted. **Note:** The Green Fund Committee only meets during the academic year. All projects submitted outside of the regular academic year will be reviewed at the start of the next academic session.

Contact Information

Project Leader Name: __Sarah Tabak__ Phone: __847-648-0609__ E-mail: sbt66@nau.edu__

Expected Graduation Date: __May 2023__

Project Advisor Name: Peter Friederici__ Phone: __928-607-3745__ E-mail: peterfriederici@nau.edu

Sponsoring Department: __Sustainable Communities__ Project name: Subpod Compost System at the SSLUG Garden__

NAU Department/Unit for funding reimbursements (Attach letter of commitment from departmental representative): __Sustainable Communities__

Project Overview

Executive Summary

Please provide a brief overview of your proposal. Please address how this project will support the goals of the Green Fund (student involvement, creating a culture of sustainability, and lessening NAU's impact):

The Students for Sustainable Living and Urban Gardening (SSLUG) Garden is the largest and most active campus garden at NAU. The SSLUG Garden is primarily used by students of the SSLUG Club but is also used for several classes as an environmental education space. There are over 180 members of the SSLUG Club and there are around 40 regular club members who show up to the garden's events and shifts on a weekly basis.

The SSLUG Garden aims to be a space that engages students in their own (re)productive capacity. Growing food and medicine, composting, and seed saving are all important forms of climate action and are central components to the SSLUG Garden. Studies have shown¹ that there is an increase in climate anxiety among college students, particularly those studying the magnitude of the climate crisis. Campus gardens serve the important role of engaging students in local climate action where they can visibly see results from their actions, engage with ecological communities, and develop a greater sense of belonging and community with like-minded individuals.

The SSLUG Garden, therefore, is an important space for students who want to engage in climate action. The SSLUG Garden's focus areas are on growing food and medicine, composting, and seed saving. This proposal aims to increase our composting capacity at the SSLUG Garden to allow us to promote our compost system to increase the number of people bringing compost to the SSLUG Garden. Specifically, we are asking for a Subpod Compost System² which is a vermicompost (worm compost) system.

The SSLUG Garden SSLUG currently has a hot composting system, however, adding a vermicompost system will allow us to expand our compost system. Hot composting can take 6-9 months to fully break down organic matter, while vermicomposting can create compost within 2-3 months³. This will allow us to take in more compost. Part of this proposal includes an outreach component that will continue beyond the implementation of the Subpod Compost System. This will increase the number of people on campus actively composting and will increase awareness and education around composting.

Vermicomposting is also a great learning opportunity to demonstrate a quick composting option that can be done at home.

Our plan for how this project will work is that once we receive the Subpod Compost System we will host a Vermicomposting workshop at the SSLUG Garden. This workshop will introduce students to the vermicompost system and educate them on how it works and why vermicomposting is so beneficial to a garden. Beyond taking in food waste, worm castings are one of the best sources of fertilizer that can be

¹ Wallace, R. L., Greenburg, J., & Clark, S. G. (2020). Confronting anxiety and despair in environmental studies and sciences: An analysis and guide for students and faculty. *Journal of Environmental Studies and Sciences*, 10(2), 148–155. <https://doi.org/10.1007/s13412-020-00609-6>

² <https://subpod.com/pages/how-does-subpod-work>

³ <https://subpod.com/pages/how-does-subpod-work>

used and they can even be used on new seedlings which can often be burned by raw compost from too many nutrients. We will then continue to have at least one vermicomposting workshop every semester after to give a full description of the how, what, and why of vermicomposting to continually educate students. In addition, we will have one garden shift every 1-2 weeks where we work on the Subpod Compost System by feeding the worms. The worms require specific conditions which are not hard to sustain but require some amount of knowledge of how much food is being fed to the worms. This makes it more challenging to have numerous people feeding the worms. To make this work in a communal space, our plan is to have a garbage can next to the Subpod Compost System where people will throw their food/organic waste. There will be a QR code that people can access to document their compost drop-off so that we can measure the number of people composting with us. There will also be a sign explaining that people can come to a garden shift to learn more about how to care for compost worms and how to take care of a vermicompost system. This way, the SSLUG Garden Coordinator can be responsible for monitoring the conditions in the Subpod Compost System and still engage and teach students, staff, and community members about the compost system.

This grant request also includes materials to create a floating row cover or a mini hoop house to cover the raised bed in the wintertime. This will help to protect the worms from the cold winter temperatures and is necessary because without it the winters may be too cold for the worms to survive. This will be made with PVC pipes so that we can construct a custom fit around the raised bed and can easily be taken off and stored away during the summer months when frost protection is not necessary.

Please answer the following questions detailing the components of your project:

1. Does your project require space or construction on campus? If so, where? Please review the “Space Committee Document” located on our webpage and follow the steps to begin requesting a location.
No.
2. Have you obtained all necessary approvals for this project? Please attach all letters of support to this application. Letters of support should include confirmation from the sponsoring department that the sponsoring department will cover all upfront expenses and work with the Green Fund Business Manager to acquire reimbursement after project completion. If any ongoing operations and maintenance is required of your project, provide a letter of support from the entity that will be covering those costs and/or services.
3. Will this project provide funding for student wages?
No.
4. Please list all additional sources of funding you have pursued. Include departments, grants, ASNAU, Graduate Student Government, etc.
5. Have any of the Green Fund Committee members been involved in this project?
 - a. If Yes, please identify all committee members:
Yes - Julia Totty, Natalie Pierson, Kiley Feld

Project Specifics

Please address the following questions. One or more of these questions may not apply to your particular application. Answer as many questions as are applicable to your project.

Relationship to NAU Climate Action Plan (CAP)

1. How does your project align with one of the seven CAP categories (Energy, Water, Transportation, Waste Minimization, Sustainable Landscaping, Environmental Justice, Communication)?

Our project aligns with the CAP in several ways. Our project will target and contribute to the goals of waste minimization, sustainable landscaping, and communication of the target areas.

Waste Minimization

Our project will take in food waste from students, staff, and faculty thus reducing waste on-campus and from our campus community members thereby diverting waste from landfills. The finished compost product will be used directly in the SSLUG Garden. This will help the garden to demonstrate a circular economy where the garden will not need to rely on external fertilizers but can use compost created onsite.

Sustainable Landscaping

The SSLUG Garden itself is a great example of sustainable landscaping that includes edible foods, medicinal plants, and native pollinator plants and habitats. Adding in a vermicompost system is another way to increase the sustainability of the landscape by providing an organic form of fertilizer for the garden. The compost will directly benefit the sustainable garden and help us to not be dependent on outside sources of fertilizer.

Communication

Our plan for this Subpod Compost system is to use it as an educational opportunity. The SSLUG Garden and the SSLUG Club put on weekly workshops centered around sustainable living and urban gardening. This Subpod Compost System will allow us to host workshops on vermicomposting. Vermicomposting is a compost system that can be easily done at home so this can provide inspiration to those looking to set up their own vermicompost system. The Subpod Compost System will also be used in environmental education on waste minimization. Throwing food waste in regular landfills contributes to methane emissions produced by landfills. However, vermicomposting composting is a way to use food waste and not contribute to methane emissions; instead composting contributes to drawing down carbon emissions from the food waste and putting it directly back into the soil.

2015 Sustainability Action Plan

Our project also addresses multiple objectives within the more recent 2015 Sustainability Action Plan. The project would fulfill Objective 3, Action 2, in the Recycling and Minimization section: ‘ *Increase recycling for all recyclable materials on campus. - Continue to improve and increase campus composting. Continue to work with on-campus gardens and landscaping to incorporate compost into local grounds’ maintenance programs.*’ This project will both increase campus composting and be working with the

SSLUG Garden, the largest campus gardens. This project will be an improvement to the current composting system at the SSLUG Garden. This compost drop-off will be open to any campus students, faculty, and staff as well as members of the greater Flagstaff community. This system will allow us to increase our composting capacity at the SSLUG Garden.

Additionally the project will also address objective 1. action 7. of the 2015 plan, '*Reduce waste generated on campus. Develop a campus educational outreach program to inform faculty, staff, and students about NAU's waste reduction initiatives.*' Part of this project includes an outreach portion to let campus and community members know about our compost drop-off, educate the community on composting and vermicomposting, and attempt to remove barriers to composting.

As the 2010 CAP points out, "*Waste minimization is important from a cultural standpoint. Campus community members often identify sustainability and carbon reduction with waste diversion actions like recycling and composting. As such, the actions in this section will help to encourage the campus community to engage with the goals of the climate action plan.*" Our project aims to engage students, faculty, staff, and community members in composting as a small, but important action to reduce carbon emissions and promoting sustainability at NAU. Having a fun, yet effective compost system to directly work with can encourage further sustainability action through experiential education.

Community

2. Is there a public outreach plan? How will faculty, staff, and students learn about this?

Club advertising, Fliers, social media, listserves, workshop when we get the compost and once or more every semester, Infographic (Jaquie), Green Flash

Our outreach initiative will include social media posts, posting to the Green Flash, and fliers to post around NAU and Flagstaff businesses. Our educational component will include workshops hosted by the SSLUG Garden and the SSLUG Club dedicated to vermicomposting and problem-solving barriers to composting at home. We will also have a tabling portion which will serve as communication of our compost system, education about composting, and serve as a compost drop-off site as well where we will collect compost at the tabling site to bring back to the garden.

We have also included three kitchen compost containers in our budget. This will be used as an outreach effort to encourage people to start composting once we get our Subpod Compost System. We will do a social media promotion in the first few weeks. When people are bringing their compost to the garbage bin they can take a photo of them dropping off the compost and can then be entered to win one of the three kitchen compost bins. This will encourage participation because anyone who participates can possibly win a kitchen compost bin that looks nice and reduces odors. People will need to tag us in their photo on Instagram, or alternatively people can email us a photo of them dropping off compost if they do not have Instagram.

3. Are you working with other groups on or off-campus? If so, describe your partnership.

Jacquie Miller and Victor Huggo Garcia will be helping us with creating info graphics

to help with communication of our project through their COM 150 Environmental Communications class. Becky Winslow and Jady Kralovic are helping with writing parts of this grant proposal. Richard Castaneda and Abby Schuh along with everyone listed above have helped with planning for this grant. Justin Portillo-Wightman helped consult on pricing for floating row cover for winter protection.

Project Parameters

4. What are the environmental costs and benefits associated with your project?

The environmental impacts of the Subpod Compost System in the SSLUG Garden are largely positive, except for the initial costs of production and shipping. The company ships their products in completely compostable packaging. The dual chamber Subpod is made of polypropylene which is a naturally BPA free and food safe plastic. According to Subpod, polypropylene is the longest-lasting potential material and, if used correctly, has an “emission offset of 2.24 tonnes of carbon dioxide” over the product’s lifetime. The Subpod infrastructure is viable for 15 years and may function for even longer with the protection of a cold frame.

Vermiculture will directly benefit the environment by increasing the productivity of the SSLUG garden. Worm castings are a healthy source of slow-release nutrients, mainly Nitrogen, for plants. Because the food-waste is ultra-processed by worms and their bacteria, it can be immediately added to the soil without burning the plants. Vermicomposting only takes 2-3 months to produce useable compost compared to the 6-9 months required by traditional hot composting, which is the only compost system we currently have at the SSLUG Garden. This will allow us to produce more compost and have the capacity to take in more food waste. This will then benefit the garden from a free (after initial costs) source of organic fertilizer which will reduce our need to purchase organic fertilizers.

5. Provide an economic cost/benefit analysis for your project. Focus on identifying specific cost savings.

Implementing a Subpod vermicomposting system in the SSLUG garden is an economically sound decision as store-bought worm castings are relatively expensive and only sold in small quantities. After the 1 - 3 month establishment period, the dual chamber Subpod worm population can process 30 lbs of food waste a week. Using an average product, such as Earthworm Castings Plant Food from the Home Depot at roughly \$1.67 per lb, as a scale, the grant investment should pay for itself within 14 weeks of operating at normal efficiency. The Subpod system should last for at least 15 years and within this time will provide us with a consistent and effective source of organic fertilizer.

6. Is this a one-time expense or will you require future funding?

This is a one-time expense. The Subpod Compost System is maintained through food and organic wastes which will cost us nothing when we have people dropping off food and organic waste. We already have people consistently dropping off compost without the outreach plan described above, so we anticipate the number of people composting with us to only go up after receiving this compost system.

7. When your project members no longer attend NAU, who will be responsible for running the project?

The people who will be responsible for maintaining the Subpod Compost System are the SSLUG Garden Coordinators. Currently, there is a graduate and undergraduate SSLUG Garden Coordinator. These positions will be trained on how to maintain and monitor the Subpod Compost System. The SSLUG Garden Coordinators will train SSLUG Club members on how to maintain and monitor the Subpod Compost System as well both for education and for continuity from semester to semester.

8. How will you monitor the impact of your project after implementation?

We have included a scale in our budget so that we can weigh how much compost we are receiving. This will also help us with the communication of this project by having pounds of waste diverted from landfills. We can also use this number to describe our carbon/methane off-set, or how much carbon we are capturing and methane we are reducing through our compost. This can then be put into relatable terms such as “we diverted the same amount of emissions as a 100-mile car trip.”

We will have a QR code laminated on the Subpod Compost System and on drop-off garbage bins which will lead to a quick google poll asking for a name and with space for comments or questions. This form will be filled out every time someone drops off compost. The form will be exported to a google sheet so that we can track how many people are using the compost on a weekly basis. The form is incredibly simple and quick to encourage people to use it every time they drop off compost and we will explain the importance of tracking usage to demonstrate the importance of composting for community members.

We will also track impact of this project through the number of people that show up to Vermicomposting Workshops, held every semester. This will tell us how many people we have interested in learning more about how the system works beyond just dropping off compost.

Project Budget

Please include a thorough breakdown of all project costs, as well as a 5% line item for contingency.

Subpod Compost System Budget			
Item	Price	Quantity	Total
Subpod system - includes Compost bin, raised bed that the system will be buried in, and compost aerator	\$354 (tax included)	1	\$354
worm blankets	\$12 (tax included)	2	\$24
worms	\$74.95	2	\$149.9
Soil to fill in the raised bed - sourced locally from Violas (local)	\$25	5	\$125
kitchen compost bin	\$27.67	3	\$83.01
Frost Cloth	\$12.95	1	\$12.95
PVC Pipe	\$5.24	3	\$15.72
Rebar	\$6.47	6	\$38.82
Floating Row Cover	\$20.20	1	\$20.20
Garbage Bin	\$33.97	1	\$33.97
Scale	\$56.32	1	\$56.32
Locking Lid for garbage can	\$9.99	1	\$9.99
Shipping	10\$ subpod + 8.49\$ true leaf market, Amazon Shipping Cost \$5, home depot free in-store pickup, Violas local pickup		\$23.49
Tax	9.18%		\$85
5% Contingency	5%		\$50

Total SubPod Compost System Cost	\$1059
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Project Timeline

The timeline should include significant implementation dates for your project. Please add information such as shipping time and consider any holidays or breaks.

Subpod Compost System Timeline		
Action	Parties Involved	Month/Year
-Order SubPod system and worm blankets from subpod.com -Order worms from trueleafmarket.com -Order PVC, rebar, floating row cover, and kitchen compost bins from home depot -Pick up soil from Violas	Peter Friederici/Sarah Tabak	March 2022
Hold a garden work shift when supplies arrive to set up compost system	Sarah Tabak	April 2022
Host an educational Worm Composting Workshop on worm composting including how to use the system, why worm composting is effective, why composting is important, how to collect kitchen scraps, etc	Sarah Tabak and Club Members involved with planning for this grant	April 2022
Create social media posts and fliers to advertise the SubPod compost. Also send communication materials to the green flash and related listserves	Jacque and Victor	April 2022
Continue to hold at least one Worm Composting Workshop every fall and spring semester	SSLUG Garden Coordinator (currently Sarah Tabak)	September 2022, January 2023

Project Checklist

Please ensure you have completed all of the following items before submitting your application:

- Meet with a Green Fund Committee member
- Obtain all necessary letters of support (sponsoring department, ongoing maintenance, etc.)
- Project Overview
- Project Specifics
- Project Budget
- Project Timeline
- Complete Project Checklist

Thank you for your submission. We deeply appreciate your commitment to sustainability at NAU, and we look forward to working with you.