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Our Possibilities with Medicinal Plants

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OUR POSSIBILITIES WITH MEDICINAL PLANTS

Georgetown County Office of Environmental Services

Abstract

To look at United Nations Sustainability Goal #3, good health and well-being, medicinal community gardens were examined. The following report shows that these gardens can serve as a solution to help aid in getting Georgetown County residents the affordable and accessible health resources they need.

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Introduction and Thesis

Creating a medicinal garden with the Office of Environmental Services in Georgetown County was my Youth Corps internship project during the spring of 2023 through the RISE Center, a United Nations Regional Centre of Expertise on Education for Sustainable Development initiative. Medicinal plants are defined as “a medicinal plant is any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes, or which are precursors for the synthesis of useful drugs” (Sofowora, Ogunbodede, and Onayade, 2013, p. 1). This definition holds true to the herbs used for this project, which were: Butterfly Pea Flower, Beebalm, Elderberry, Passionflower, Mint, and the Life Everlasting Flower. Each of these plants served a different role in aiding one’s health and were chosen for reasons such as accessibility, safety, and applicability to a variety of ailments. The medicinal garden operates much like a community garden where people can come and harvest or help plant, but instead provides access to herbs with medicinal properties rather than fruits and vegetables. My project served as an extension of the already established community garden, which was aided by my peer, Aaron Osborne, as well as previous interns. A public medicinal garden would allow for the growth of native species with an array of medicinal properties while being able to allow the community access to education and proper use of the plants. Creating a medicinal garden in Georgetown County is helping to provide residents with an expansive set of options on how they can respond to the needs and health of their bodies while connecting them to the community and overall, the chance to improve one’s quality of life.

This research aspect of this project centered around cultural values, the history of medicinal plants usage, a look into the perceptions the community has with these practices, and further, how the community perceives their needs in this area of their lives. Followed by

intended ways in which the garden will work to enhance a community focus on their education and usage of the herbs provided. Finally, this report will detail the execution of the project including information such as reasoning for the setup and inclusion of certain plants, and the overall creation of making this garden harvestable and accessible to Georgetown Residents.

Relating to Sustainable Development Goals: On the Global and Local Levels

A medicinal community garden aligns with the county goals and needs, which includes providing a good quality of life; also, heavily influenced by the needs of the environment and what the community needs from it to run smoothly. It also aligns with the Sustainable Development Goals (SDG), particularly SDG 3: Good Health and Well-being. Within SDG 3, Target 3.8, quality and affordable essential medicines, and vaccines for all, is an inclusive look at where the quality life improved. The mention of safe, effective, quality, and affordable essential medicines can cover the garden's intent by providing safe harvesting and access to medicinal plants which aim to provide effective solutions to common ailments. Recognizing that the garden will not be a cure all for community health, the impact of an accessible resource that provides education on the safety of usage works alongside this global initiative on a local level in Georgetown County, as shown in target indicator 3.8.1, coverage of essential health services. This project also touches on targets 3.b and 3.d regarding development and research promotion of medicines and risk reduction, but for this paper's purpose, we will focus on target 3.8. This garden further pertains to SDG 12.

The purpose of the garden also heavily relies on the importance of sustainability and understanding the role it should play in our consumption. Target 12.2 achieves the sustainable management and efficient use of natural resources, along with its indicator 12.2.2 on measuring domestic consumption can help us identify the sustainable difference that is created from

community resources. Allocating resources to help the community not only use but learn about native plants as well as make the harvesting methods sustainable pursues SDG 12. Some medicinal plants are found and harvested in a natural growing place such as wooded areas but that doesn't mean that these areas are accessible, and it also doesn't account for the damage that can be done on overharvesting the natural landscape. The garden allows for a specific place where the plants are meant to be harvested rather than putting any areas of naturally occurring growth at risk. This also helps ensure that the resources are less likely to be wasted as this is a community accessible project thus understanding that it is meant for the benefit of all as well as providing education regarding the amount needed for different remedies which will ideally help reduce overharvesting too.

Globally, there is a strong importance placed on these herbs. "Around 80% of the world's population is estimated to use traditional medicine. To date, 170 of the 194 WHO Member States have reported the use of traditional medicine, and their governments have asked for WHO's support in creating a body of reliable evidence and data on traditional medicine practices and products" (World Health Organization, 2022). The following images help depict the multiple areas in which medicinal plants can be important regarding their accessibility and benefits in Europe. This helps put into perspective the influence of these herbs beyond a county wide level and takes our considerations to a different continent, furthering understanding the importance of plants being native to their area.

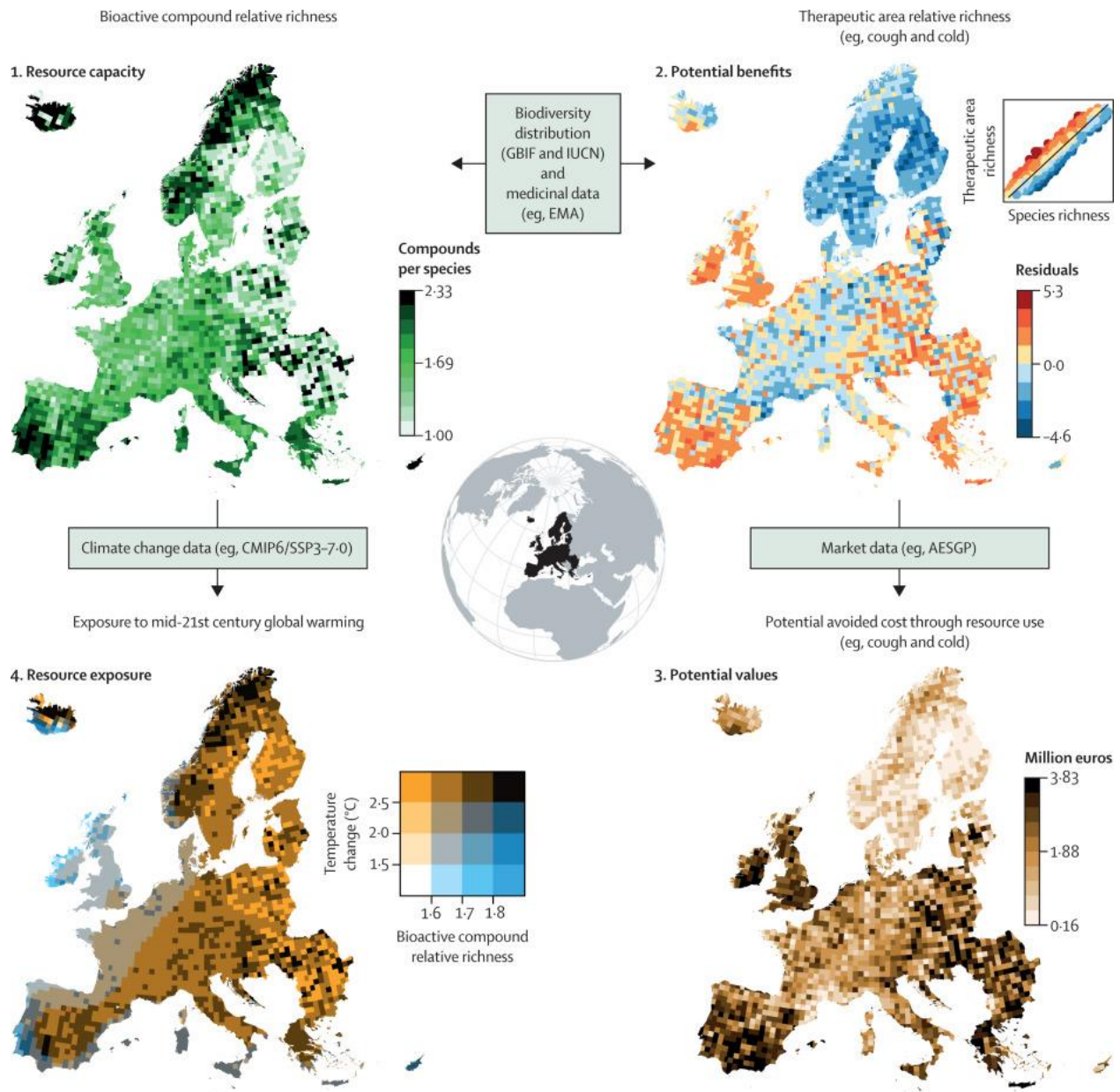


Figure 1: (Theodoridis, Drakou, Hickler, Thines and Nogues-Bravo 2023, p. 5)

On the local level, the county has a comprehensive plan that aligns with the SDGs (Sustainable Development Goals). The Natural Resource Element includes goals such as protecting and sustaining the natural resources of the region, making their protection a top priority in shaping the county's future; sustain natural environments, habitats, and wildlife for the general health, safety, and welfare of current and future generations; promote environmental,

science-based education for local decision-makers, businesses, and members of the public (Georgetown County, 2022). All these goals tie into the SDG's as well as the purpose that the medicinal garden aims to achieve. The county looks at their practices regarding sustainability by using the comprehensive plan to set goals for its development over a 10-year time period. Within this, the strategies they plan on implementing show the connection between Goals 3 and 12's relevancy on a local level. For example, the comprehensive plan includes the goal "Protect and sustain the natural resources of the region, making the protection of these resources a top priority in shaping the future of the county" (Georgetown County, 2022). Target 3 and 12 both align with the local level goal listed above by the emphasis on protecting natural resources, which the garden aims to improve through accessible and safe harvesting coupled with education and creating quality of life for residents through available remedial plants. Progress will be shown in levels of community engagement and the ability for the project to expand with residents involvement. These targets are measured in a way that is feasible for the locality of this project and we can see the health and well-being being affected based on the number of residents who utilize this resource, while allowing a space for feedback.

Literature Review

Recent literature suggests that while medical plants have been used for centuries, both on their own and as a basis for research in creating medications and vaccine, they are also resurfacing in home remedies. Medicinal plants house a deep history in South Carolina due to their usage by the Gullah people, many of whom still practice with these herbs today. For this community, this type of "folk medicine" has connections to family and traditions but also helps aid in the lack of trust they have in the medical community (Banks, 2013). These social factors are important to note in how one builds a relationship with the healthcare system; accessible

medicinal resources are an important feature of any community. Research presents that gathering in urban areas permits ecological benefits as well as social incentives. As we plan to run this garden in the same way a community garden functions (accessible, educational, available to take and use at home, etc.), literature focused on the impact of community gardens in general allows for us to see potential benefits in this setup. Frameworks are also established to ensure that greenspaces and other natural resources are available to and catering to the right audience, for example, those who may not have personal access to these areas and thus rely on public areas for use (Westphal, 2003). Community gardens, more specifically, have been studied to understand the health benefits they provide to all populations. Examples included lowering stress and improving mental health simply through participation. Research proves that significant health improvement and risk reduction can be brought to a population through community participation on such projects which continue to aid in physical activity and other health assets on both a social and physical level (Alaimo, Snyder, Crawford, Litt, and Beavers, 2016). Overall, data is consistent between an array of journals that community engagement can be increased through gardening practices and other literature also poses the idea that medicinal gardening holds benefits for health and deep cultural understandings.

Of course, health is not only improving from the participation and benefits of shared space, but individuals can reap health benefits from the plants themselves and the medicinal properties they hold. Yale University has published an article in their student newspaper on this topic specifically, “In contrast, herbal medicines are generally gentler on the body. When taken at the recommended doses, natural treatments result in fewer side effects. By using a natural drug instead of a pharmaceutical one, you may be able to reduce your reliance on synthetic medications and avoid their possible side effects” (Yale and Ledger, 2022). Other than using

medicinal plants as an alternative, they have also been the focus of many studies working to treat more threatening ailments such as prostate health (Katz, 2002) and cancerous skin tumors (Haung, 1994). Yet, they also hold great incentives for using the remedies on a self-care level at home. Several studies have been conducted to review their efficacy and results have shown that the same simple herbs, such as lavender, chamomile, and lemon lower stress levels, help induce sleep, and more.

Further, community gardens are accessible to Georgetown County despite concerns of costs and labor needed for upkeep and maintenance. Large scale gardens have potential to cost as much as \$5,000 to start up, much of these expenses coming from water hookup and fencing (North Carolina State University, 2017). However, Environmental Services received a grant to finance the medicinal garden and the project still fell under budget. All seeds were gathered from native plants in the surrounding area and other materials such as signage was created from recycled material found onsite at the landfill. The labor associated with the initial setup was taken on by individuals in the UN Youth Corp internship program which helped to cut extra costs in obtaining outside laborer's and prevented from taking time from already employed individuals. Since watering had already been configured for the office's community garden, it was also able to reach and provide for the medicinal garden given their proximity. To predict any extended expenditure is difficult, but considering the costs thus far, it is unlikely that the garden will require any further investments for several years to come.

Empirical Evidence

To understand the needs that the community would want addressed through the medicinal garden, a survey was conducted via Google Forms and shared on Facebook. The survey results used for this report were gathered from March 13th, 2023, to April 3rd, 2023. Each question

works to understand the role that medicinal plants play in resident's lives and how the garden can aid or increase that role to the benefit of the individual. The garden is not customizable per person, but survey results helped determine the levels of difficulty relating to the growing/harvesting process, education needs, and overall, if this was something the community was interested in. The questions and survey answers are shown below in Figures 2, 3, and 4.

Figure 2: Participant Responses on understanding medicinal herbs

What is your current understanding of medicinal herbs and their usage?
16 responses

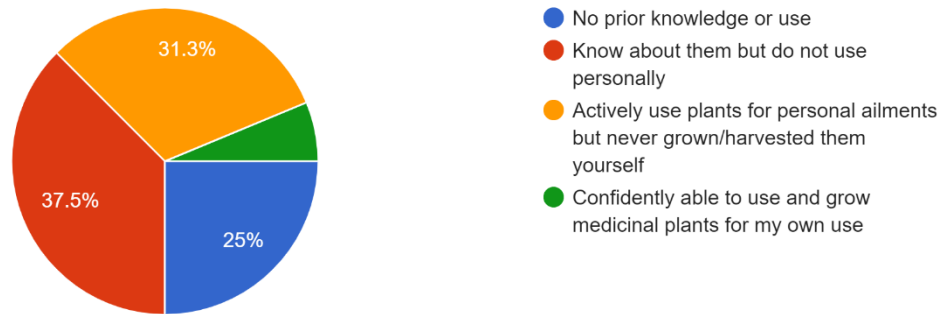


Figure 3: Participant Responses on access to medicinal plants

Do you have access to medicinal plants near you? If so, please explain: at home growth, local garden availability, forage and harvest from public land, etc.?
16 responses

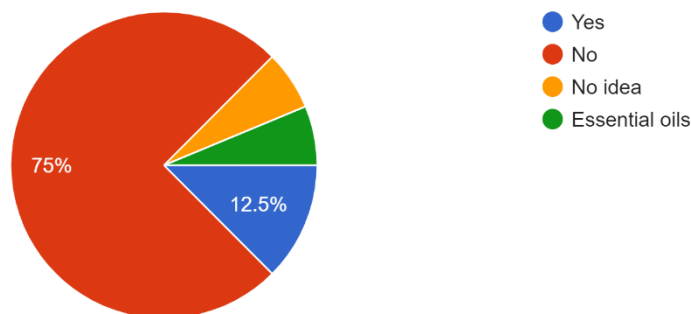
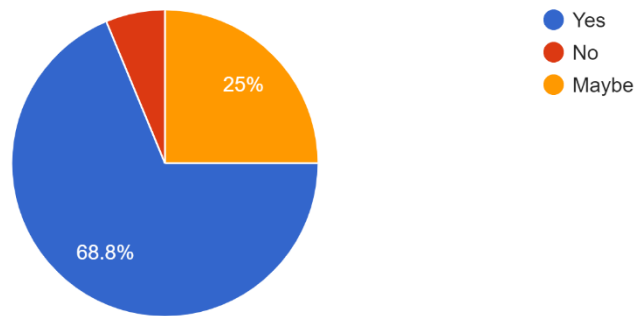


Figure 4: Participant Responses on interest in medicinal community gardens

Would a community medicinal garden increase your interest or usage of medicinal plants for personal ailments?

16 responses



The survey also included a question regarding what herbs the individual would like to see, all of which had different, but informative and helpful responses. Further, the perspective need for a community garden was originally drawn from the Georgetown County Census from the following categories: healthcare, workforce, and poverty. Following the US Census on Georgetown, important statistics in those categories aid us in understanding the prevalence of different community needs. About 15% of the Georgetown population does not have medical insurance, while 11% of the total population are UNDER 65, and have a disability. (US Census Bureau, 2021). It is not uncommon for healthcare bills to be unaffordable without insurance and this can cause individuals to avoid traditional doctors' visits and sway them toward the uses of home remedies when plausible. Thus, this population shows a potential struggle in health maintenance and may benefit more heavily from community access to remedial plant practices and thorough education of the herbs they use.

Following this, the US Census shows that the majority of Georgetown County's population participates in the workforce and on average, residents have a 30-minute commute to the workplace. It is also noted that although a significant amount of the citizens is employed, 14% still face poverty. The biggest industries in the county for employment are retail trade, food service and accommodation, and health care and social assistance. The retail trade average annual income is \$31,096. For food service positions it is only \$23,920, and health care/ social assistance receives the most between these three, the annual wage coming in at \$58,344 (S.C. Department of Employment and Workforce, 2022). The overall median income for the county is \$55,719. (US Census Bureau, 2021). The reason these are important and related is that the top employment by industry is not even reaching the average annual income. The 2022 poverty line for households of 2 is \$18,310. For 3 person households, it is \$23,030. The point here is that although the healthcare and social service industry brings in a higher average annual income, the other two industries fall much closer to poverty lines.

Socioeconomic factors are essential considerations in understanding the residents desire or need in pursuing the usage of medicinal herbs. However, poverty rates in Georgetown County illustrate likely difficulties and challenges in ability and time to learn about and plant a garden. Even if a substantial portion of the population were to have basic knowledge surrounding medicinal plant usage, that doesn't guarantee that the resources or time that come with gardening are also available. The statistics for medical insurance and disability demonstrate a community need for medicinal plant knowledge and use. The challenge is making this community medicinal garden accessible to all. The Census aided research for a particular audience that may receive the most benefit from the garden, but other data went into understanding what would be beneficial for the community regarding the growing and harvesting of plants.

Eighty percent of people worldwide rely on herbal remedies as a part of their primary healthcare (Ekor, 2014). However, that does not remove the possibility for having adverse reactions, using the crops in the wrong way, or other safety concerns. The article cited in the previous sentence helps explain these risks. This in turn can support a community medicinal garden by allowing the Office of Environmental Services to provide information on potential adverse reactions while also choosing to plant low-risk herbs. This will help uphold the clear push for herbal medicines to the community but allowing a safe and accessible way to learn and use these resources.

Further, a different focus group based on medicinal plant usage in Germany showed that “Herbal Medicine was found to be used predominately for treating mild to moderate diseases (all age groups) and to prevent illnesses/promote health (only elderly participants), and that participants were aware of its limits “ (Klein, Welz, and Menrad, 2018). The authors do go on to once again express safety concerns and why knowledgeable use is important. So, while we can see that individuals understand the main purposes for use, there still needs to be cautionary information. The benefit here is that these plants grown at the garden will not be processed or altered in the growing or harvesting process which helps alleviate health concerns that may arise in pill or supplement versions of these herbs. There is access to everything that will go into the garden and provide full transparency for community interests. The data from this group and studies regarding the safety of medicinal plants suggests that a medicinal garden will be a positive community resource that has high potential to be utilized often and safely.

Conclusion

Overall, the intent of creating a medicinal garden follows along with Georgetown’s initiatives toward sustainable practices but beyond that aligns with the global efforts of the UN

(United Nations) through SDG's focused on health and conscious consumption. Through the work that it took to plan and organize the garden, research helped to show why medicinal herbs are important to cultural groups, low-income communities, and many other people. The herbs are an accessible and health-conscious way to improve mental and physical health along with remedying common ailments such as stress, headaches, and poor sleep habits. The US Census helped to highlight the ways that Georgetown residents overlap with those expected to benefit from accessible medical practices and community resources. The garden is aimed at enabling community engagement in a way that will be sustainable through continued maintenance of the garden and in turn increase the quality of life for those in the surrounding area.

Recommendations

Final implementation of the medicinal garden requires planning for the future success and maintenance. The clearest necessity is working to maintain the garden through a continuation of planting, harvesting, and updating resources as necessary to the community. This can be carried on by upcoming interns or community planting days as done for the community garden. Pursing advertisement of the gardens availability and resources would also help source volunteers for these purposes if necessary. Many community gardens use volunteer work to function long term and with initial startup costs having been addressed, this is likely the best course of action to keep costs low and generate community engagement. Following the steps of a community garden created by a group in North Saint Paul. A major takeaway that they provided was the important of growing partnerships within the community, but beyond individual residents. They explained that they aimed to outsource the vegetables to local schools, farmers markets, and allow for the project to expand to other places in the community.

There is plenty of potential to push these goals in Georgetown County. Looking to link up with other groups who have access to land in order to put more medicinal or community gardens up would allow them to be accessible for those not directly in the site area. Further, it is worth considering the collaboration that could take place in outsourcing these resources through small business or events which would increase exposure, and ideally engagement, for all involved. We may also choose to expand what resources the Environmental Services has to offer such as creating composting programs or educational events that allow residents to take gardening home with them. Advertising and producing a multitude of resources available at the office, can bring in a wide array of individuals and give them the opportunity to then explore all we have to offer, beyond just the resources they came for. These suggestions are not only meant to push community involvement, but sustainable practices through education on what individuals can learn when participating in volunteering and interacting with hands on learning experiences.

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