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Constructing resilient systems in the historic south

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Abstract

The College of Charleston (C of C) is a South Carolina Liberal Arts College that prides itself on giving students a far-reaching, multi-disciplinary education. Developing a Restorative Agriculture Program in this environment has proven to fall within C of C's stated appreciation for diverse learning. The Restorative Agriculture Program tackles issues of urban food production by practicing space-intensive methods including companion planting, forest gardening, guilds, crop rotation, and intensive hot composting to utilize limited space for efficient production. This high intensity practice demands that resources are used in a strategic manner where nothing is wasted. With our gardens on campus, we demonstrate to the community and campus the many ways to alleviate waste while offering a location to do so, exemplified by the compost drop off we offer to campus. As a campus in a historic city, there are unique aesthetic and cultural guidelines we must adhere to. We have learned to use different protocols when educating others to create sustainable and creative communities. Similar to the plants we work with, we try to develop a network of support from different areas of the campus and community including various educational departments, the library, local horse stables, and surrounding stores and restaurants. Working with a variety of departments has built a synergistic arrangement where overlapping resources, knowledge bases, and support provide a larger opportunity to succeed. Currently the program is still in its beginning phases and the development to come will be fostered by current and future relationships in the Charleston community. As our knowledge widens with every experience, more opportunities develop to share this information to the larger community. Our program ultimately seeks to provide an alternative approach to learning about oneself, leadership, community, and active citizenry through restorative agriculture.

Keywords

restorative agriculture, alternative education, permaculture, tactical urbanism, regenerative project development, land tenure

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INTRODUCTION

College of Charleston's (C of C) campus is woven directly into the heart of the city, both physically and historically. Founded in 1770, it is one of the oldest educational institutions in the United States and therefore places enormous value on its history and traditions. From the historic student housing to the centuries old live oaks, the campus constantly makes references to its past. Three of C of C's founders were signers of the Declaration of Independence and some of the first classes were held in Revolutionary War military barracks (College of Charleston, A Brief History of the College, 2016). With five National Historic Landmarks within a three-block radius on campus, pride in the history of the city and college permeates the community (College of Charleston, Place of Interest, 2016). Located in conservative South Carolina, Charleston exemplifies the idea that "some of America's bluest cities are located in its reddest states" (Kron, 2012). The College and its students bring a progressive energy to the city and provide new perspectives on these traditions. There are many businesses and farms opening in and around Charleston, feeding the new attitude of the city. Downtown restaurants are starting to include rooftop gardens and join the campaign to grow your own food and buy locally. In the wake of this cultural

development, the C of C Grounds Department created the Restorative Agriculture Program to pursue a more intensive study in regenerative agriculture in an urban context. The program planted the seeds for a synchronistic restorative action plan by creating an in-house composting system for C of C, urban gardens for food production, community outreach programs, and student internships.

The Restorative Agriculture Program is now officially established with even more intensive gardens, an expanded internship program, and symbiotic relationships with other departments. Although under the umbrella of the Grounds Department, there is a clear distinction in function and purpose between the two. While the Grounds Department primarily serves to beautify and maintain the campus, the Restorative Agriculture Program focuses on sustainable agriculture practices, food production, and student and academic involvement. There are limitations to working on this type of project in a small, historic city. What follows is a discussion based on the restrictive development policies, land tenure, and the value placed on history in the city and campus. We began to understand how to successfully build and manage the program by recognizing the space it could occupy within the existing campus structure. Through stacking functions, social sustainability, and integrating educational goals, we created and maintained a resilient system that could be adapted in years to come.

DISCUSSION

In addition to the typical spatial restrictions of a small city, Charleston puts limits on construction projects based on its unique, historic appearance. As the first federally recognized historic district in the nation, Charleston now includes 4,800 historic structures (Terry and Smith, 2015). The Historic Charleston Foundation and the Charleston Board of Architectural Review (BAR) are in place to “. . . preserve and protect historical, architectural, and material culture of Charleston’s rich and irreplaceable heritage” (Historic Charleston Foundation, 2016). Some of the methods used to uphold this standard include regulations for hardscaping, hurricane protection panels, piazza enclosures, historic roofing, and the screening of piazzas and porches (Board of Architectural Review, 2005-2014). Each of these categories has a specific set of guidelines for new development. The Restorative Agriculture Program instead opts to acquire unused space and utilize the historic aesthetic to create unique, food-producing gardens.

Finding space becomes difficult on a campus where the student body and academic buildings are intermixed into the main streets of downtown Charleston. The city consists of concentrated space with a set of diverse zoning codes. C of C falls within multiple building zones, including: general business, limited business, and diverse residential. The campus is also partially in the school overlay zone that permits “special expectations from the Zoning Board” (College of Charleston Campus Master Plan, 2012). The city zones limit the function C of C can play in specific parts of the city. Working on a campus with shared space and regulations involves many stakeholders in the decision-making process for land use. As an institution in Charleston, there is deep value placed in history and tradition, making it easy to meld the campus into the BAR and Historic Charleston Foundation's views of iconic Southern history. In order to pursue this historic aesthetic, the priority of C of C has primarily been with maintaining the traditional historic landscaping. By introducing the Restorative Agriculture Program, C of C has provided itself with the opportunity to further its landscaping beyond beautification and integrate food production, innovation, and education into its grounds.

The latest College of Charleston Master Plan from 2012 contains four phases for developing the campus to be accomplished in the next eight years: implement priority projects, campus upgrades and realignment, campus upgrades and capacity, and long-term needs. While there is a subsection for open space projects, the intention was for landscape, furthering the desire to maintain the historic, manicured iconicism of C of C. Additionally, there is mention of adding “green space”, but it is not included in the detailed plan of the four phases, nor is there clarification of their definition of “green space”. We used this ambiguity to our advantage by proposing food-producing, educational gardens as a green space project. The plan estimates that by 2020, 896,426 gross sq. ft. of land will be needed for the establishment of the first four phases (College of Charleston Campus Master Plan, 2012). The prioritization of building space stems from two ideals held by C of C. One is the ideal to “promote an intellectual community” and the other is to tie that education to “. . . the history and tradition of Charleston and the Lowcountry” (College of Charleston Campus Master Plan, 2012). The Restorative Agriculture Program’s gardens combine these two ideals and create interesting spaces that refer to the city’s agricultural past while remaining food producing.

Land tenure is defined by the Food and Agriculture Organization of the United Nations (FAO) as, “. . . rules invented by societies to regulate. . . how property rights to land are to be allocated within societies” (FAO, 2002). C of C has established land tenure practices which embody their values of capital and historic aestheticism. Land tenure is an established institutional practice, but because the definition is inherently open to cultural interpretation, the implementation of the practices is subject to the bias of the ruling body. Obstacles arise in the cityscape when the owners do not have direct connection to their land. One of the garden sites, for example, is leased by the school, but owned by a third party. Despite the owner’s disconnection to the land, they have laid out specific maintenance plans and land use practices expected of the Grounds Department. This is a commonality throughout the city that creates “intersecting interests” (FAO, 2002) concerning land ownership and preservation which create multiple understandings of how to best use the space. Taking into consideration these differing perspectives gives way to collaboration and investment from all parties.

Solutions

1. Stacking functions

Playing on aesthetics while remaining steadfast to permaculture and restorative agriculture principles is often the easiest way to obtain internal buy-in. Recent studies concerning declining bee populations have brought attention to the need for more hospitable environments for pollinators such as bees and butterflies (Koh, et. al., 2015). Understanding this, we stack our functions by planting herbs like *Borago officinalis* and *Valeriana officinalis* which are aesthetically beautiful, attract bees, and serve as dynamic accumulators for our soil. This serves our main objective to cultivate biodiversity, biomass, and sequester carbon into the soils while also maintaining visually attractive landscapes. The Warren Place urban garden on campus is a student established biodiverse garden and food production system that focuses on polycultures, guilds, and companion plants. The diversity in ecology was made possible through propagation and harvesting of seeds, building an extensive four-year-old seed library. The function of seed saving is to create a closed loop system where, through the generations, the genetic composition of the seeds becomes acclimated and resilient to the climate (Ashworth and Whealy, 2002). Saving seeds ensures stability and ecological balance by providing a biodiverse cast to fulfill a

variety of functions. Systems thinking, resource weaving, and creative problem-solving build resilient ecological systems within all of our urban gardens and composting systems. We utilize resources on campus by harvesting materials such as bamboo to build our outdoor education facility. We also gather organic matter such as leaves, cardboard, and grass from campus, and manure from the local horse drawn carriages in town. These synchronistic practices build community connections and increase the level of self-motivation and leadership among students.

When working with the BAR and other stakeholders determining land practices, these strategies are instrumental to blend our work into a city that focuses so much on its historical iconicism. In this stage of cultivating community investment, education, consistency, and positive interactions become key components for change-making and tactical urbanism. Overlaying these components with restorative agriculture is our protocol for resiliency.

2. Social Sustainability

Resiliency is cultivated through repeating patterns as well as connectivity. We strive to have a deep understanding of the systems within the campus and city environment by using input-output analysis to map out social connectivity within these spaces. We implement positive place making techniques as part of tactical urbanism by utilizing vacant or “non-places” (Bermann and Marinaro, 2014) for food production systems where students can gather to enjoy lunch, reflect, or volunteer with the garden. Student art, book share libraries, and workdays lay the foundation for an inclusive environment and invested community. These techniques paired with restorative agriculture methodologies allow students to gain first-hand experience of alternative and regenerative living systems in action. We offer a student internship to provide a unique perspective to compliment classroom experiences and provide a competitive edge in job preparation and active citizenry. Students are therefore taught a whole systems approach, which “provides a problem-solving platform for considering ways to enhance disciplinary knowledge, critical thinking and analysis, and traditional general education” (Fisher, 2014). This relates to C of C’s need for a more competitive campus by providing, not just new technology and better buildings, but a different approach to education that appeals to different learning styles and future employers.

Education is integral in fostering relationships around land tenure practices, and how we can become more efficient with our labor, time, and finances. Our land tenure practices are driven by long term and sustainable methodologies like permaculture, biointensive agriculture, and polyculture systems. Students are expected to engage with these practices, developed through the repetitive nature of tending to various projects every week for a year or more. This constant engagement builds resiliency in the students by documenting and experimenting with practices such as sheet mulching, companion planting, crop rotation, perennial food systems, forest gardening, bio-intensive farming, carbon farming, and vertical farming techniques. Just as the soil is teeming with life and abundance through plant matter and soil food webs, activity above the soil thrives through a growing conscious community.

3. Integrating education

We use alternative education methods because they are proven to complement traditional education by fostering “... stronger relationship[s] with teachers, peers, and the community” and creating a more “positive learning environment” for the students (Caroleo,

2014). The Restorative Agriculture Internship values self-motivation, highlighting and addressing social justice issues within agriculture and the campus community, and building upon hard and soft skills. The internship provides one to two yearlong student positions, and focuses on developing leadership, education, facilitation, project management, and empowerment. Rotational intern positions allow new students to become acquainted with our programs by being assigned to positions in the compost program, herbal program, student Community Supported Agriculture (CSA) program, or social media accounts. Students therefore have the ability to highlight their skill set and areas of study to address some of the needs on campus, while simultaneously fulfilling the needs of the Restorative Agriculture Program. An integral part of the student internship is stacking functions by focusing on social, economic, and environmentally driven initiatives; if the project does not serve at least three functions; it is not incorporated into the program. An ecological example of this approach is our vermiculture system, as it is practicing waste diversion, providing resources to make compost tea, and serves as an educational tool. The students learn that the key is to redefine how we interact, behave, and manage our systems as a program, and as a campus.

Like the constant state of evolution and growth in nature, so is the state of the internship. Community development plays a key role in our programs and orchestrates our approach to working with students and the community. With so many projects taking place at once, it is imperative to instill accountability to work as an interactive team capable of incorporating incremental change into the various projects. By merging and overlapping the inputs and outputs of the projects within the restorative agriculture program, each system feeds and maintains the other. When students and departments participate in our compost program, “waste” is diverted through three different composting systems: thermophilic compost piles, static composting, and vermiculture. Student interns are directly responsible for maintaining these waste diversion processes, as well as transferring the outputs to our urban gardens, and the overall campus. This cultivates a deep sense of investment and accountability among fellow interns and the campus community. We perceive development as growth that is serving multiple functions and can be managed in palpable ways. Once students are equipped in their understanding of this type of growth, think tank sessions are held to address the programs through an analytical eye and help to cultivate personal investment and empowerment. Collaboration among students, teachers, and departments on campus provide a more interdisciplinary approach to their experience.

CONCLUSION

Through working in a historic environment, we have learned to adopt a systems thinking mentality practiced through various methodologies of restorative agriculture. We have learned to perceive the campus and urban environment through a resourceful lens, demonstrated through restoring abandoned lots, seed saving, and upcycling from C of C's waste stream; ultimately providing us the time to adapt to these circumstances through accountable and sustainable program management.

We have scaled our goals to make them achievable in the present and for our administration to be prepared in the future. As stakeholders become more invested in the program, we will be able to pursue more ambitious goals such as expanding our existing gardens and creating a student run CSA. While students can receive class credit for participating in our programs, we envision a more comprehensive experience including research and development positions, co-teaching restorative agriculture classes, and

establishing an urban agriculture track with a full-scale urban farm as the classroom. Inspired by other university programs, we strive to weave research and development opportunities with social justice components, complex food systems, and the importance of local food (University of San Francisco, 2016). However, these components cannot be accomplished without enhancing our support system at C of C. With a committed team of student interns, we are laying the foundational groundwork for a program that can serve as inspiration for restorative agriculture at the College of Charleston. Cross pollination of ideologies among students, professors, and community members helps to provide an inclusive and inspiring space for restorative practices to take seed and bloom.

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