

# Growing Pains: Moving Campus Gardens Beyond Administrative Barriers

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# ABOUT THE AUTHOR



I have worked as an ecological designer, environmental educator, and garden program manager for twelve years. During these years, I have created hands-on, experiential curricula for students aged pre-school through undergraduate. I have seen firsthand the academic benefits, community engagement, and eco-social identities students gain through their exposure to outdoor learning spaces, corroborated here by academic research and further described in my research findings.

During my two years of coursework as a master's student at the University of New Mexico, I managed the campus Lobo Garden, organizing workshops and tending the garden with other students. I taught four semesters of the garden's undergraduate course 'Lobo Gardens: Environment, Health, and Social Change,' I developed an affinity for the space. I believe in its potential and success.

This document is dedicated to the outdoor education movement, which touches countless young people with meaning and purpose during their formative years.

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# Executive Summary

School gardens & farms are invaluable community engagement and experiential learning spaces that serve diverse connections between multiple academic disciplines. School gardens have become increasingly popular across the U.S. and are positioned to become fixtures in educational institutions, given community advocacy and national legislative interest. The University of New Mexico misses a valuable opportunity to leverage its student-initiated 'Lobo Garden' as a living laboratory, applied educational learning space, food production area, and hub for community engagement. UNM's Albuquerque campus spans about 600 acres, yet only 600 square feet are allotted for outdoor learning. Instead, the garden has faced a decade of administrative barriers preventing its integration into student life and institutionalization as a valued campus resource.

Most academic research on gardens covers K-12 grade schools and centers on extensive student academic and health benefits. Little is known about university-level garden programs or the management approaches contributing to their operational success.

In order to explore the variables contributing to thriving and well-integrated University garden programs, I conducted nineteen in-depth interviews with U.S. university garden program coordinators, administrators, and key stakeholders. I questioned program governance, academic connection, budget, and administrative role to understand each program's operational success and barriers.

## Key Findings

University campus garden programs are critical community engagement and experiential learning spaces. Administrators celebrate gardens as part of their sustainability initiatives, yet these programs must fight for their existence as a campus resource. Through interviews with University school garden programs across the country, I found that barriers to program success stem from a lack of administrative commitment that manifests through five commonly experienced barriers:

1. **Incomplete Administrative Support**
2. **Unpaid Labor and Informal Management**
3. **Unstable Funding**
4. **Inadequate Student Input Process**
5. **Lack of Program Oversight**

These findings lead to informed recommendations to integrate and institutionalize UNM's Lobo Garden program:

1. **Expand the Food Production and Outdoor Classroom Area**
2. **Clarify Roles Between Stakeholders**
3. **Increase Visibility through Partnerships**



# Introduction

The Lobo Campus Garden provides a vital, authentic space for diverse community connections on the UNM campus. Here, students of many disciplines work side-by-side, pausing to split a sun-ripened melon or nibble snap peas off the vine while discussing and bonding over environmental issues, intended career paths, and family stories. The joy of being outside within community, including the web of relations with other creatures such as the roadrunners and pollinator insects who frequent the space, is a throughline that keeps students and neighbors returning to volunteer each week. Participants arrive by foot or bicycle to tend to the modest space bursting with blue corn, beans, and squash (traditionally known as the Three Sisters), colorful medicinal flowers, and a small orchard offering juicy cherries, pomegranates, and apples throughout the growing season. A decade of student academic design projects reinforces classroom learning and gives the space an air of an adored community hub.

Despite students' best efforts and recent increasing administrative interest, the garden historically lacks the institutional backing needed to be a well-integrated, institutionalized part of student life. Tucked away behind the Real Estate Development building at the farthest northeast point on campus, the garden's hidden location reflects both the administration's inability to recognize a powerful opportunity for experiential learning and its refusal to invest in the garden as a campus sustainability hub, as it denied student proposals for a more central site (Riley, 2010). Though the campus spans about 600 acres, only 600 square feet are allotted to grow food and serve as an outdoor classroom.



*The lawn hiding Lobo Garden from Campus Blvd.*

Most students are unaware of a campus food production space, passing by the adjacent lawn without noticing it. One student in the Lobo Gardens class remarked on his first day, "I feel like I'm in someone's backyard, and I'm not supposed to be here" (personal conversation, August 2021). This lack of visibility stems from five identified institutional barriers that commonly prevent the integration of university garden initiatives across the United States.

The Lobo Garden is entering its eleventh year and is at a pivotal moment to expand its impact. This is an advocacy document and road map for the Sustainability Studies program to contribute to meeting their goals of increasing the campus garden's visibility to students, academic connection, and administrative support. This paper promotes the longevity and integration of the Lobo Garden by harvesting the lessons found through interviewing twelve university garden program managers across the United States and seven UNM administrators on their operational success and challenges.

# BACKGROUND

## THE RISE IN SCHOOL GARDENS

Most academic research on gardens covers only K-12th grade schools. In this paper, I use "school garden" to discuss K-12th grade research and "campus garden" to discuss higher education findings.

School gardens have become increasingly popular (Turner, 2016) and are positioned to become fixtures in educational institutions, given community advocacy and national legislative interest.

Around the 1990s, school gardens began to replace barren dirt, asphalt parking lots, or lawns, adding many benefits such as dynamic outdoor classrooms, living laboratories, community hubs, and hands-on experiential learning. Academic, health and social benefits are well-documented and covered in the 'The Benefits of School Gardens' section.



*Students enjoy the benefits of UNM's campus garden, 2023*

The State of New Mexico has several new legislative policies that support and encourage school gardens. The New Mexico Public Education Department has established nutrition and wellness standards for all public schools in the state. These standards include guidelines for nutrition education that encompass support for school gardens.

The state is active in the Farm to School movement, which connects schools with local farmers and encourages using locally sourced foods in school meal programs (Farm, 2023). This initiative often involves supporting and utilizing school gardens. An interagency Outdoor Classroom Taskforce convened to coordinate and expand the use of outdoor classrooms statewide and provide funding (Senate, 2021).

These efforts indicate positive legislative trends toward school garden implementation.





# BACKGROUND

## UNM'S SUSTAINABILITY COMMITMENTS

In its 2017 Administrative Policies and Procedures Manual, UNM considers sustainability a priority responsibility. It acknowledges its position is “to educate and prepare future leaders in sustainable practices critical to the future of society and the environment” (section 3.0). It values a “campus culture of sustainability” achieved through interdisciplinary projects and experiential learning, identifying that “flexibility in curricula should be increased so that students can increase their knowledge about sustainability issues.” (section 4.1) It commits that the Office of Sustainability will find unique learning opportunities for sustainability practices and “provide opportunities for student involvement in sustainability projects as part of their academic studies” (section 3.2.1).

UNM’s 2040 Strategic Plan will “Transform the educational experience by creating supportive, intellectually challenging, exciting, diverse, joyful learning environments inside and outside the classroom to ensure the lifelong success, upward social mobility, and engagement of all learners” (GOAL 2).

Despite these commitments, Lobo Garden is not included in any of UNM’s sustainability initiatives.

It is not included in campus tours, orientations, policies, or marked on the official university map.

This paper explores practical recommendations for advancing the Lobo Garden based on interviews with better-integrated programs across the United States. I aim to develop the Lobo Garden program while avoiding the pitfalls of five commonly experienced administrative barriers.



**Despite these commitments, Lobo Garden is not included in any of UNM’s sustainability initiatives.**

**It is not included in campus tours, orientations, policies, or marked on the official university map.**

# THE BENEFITS OF SCHOOL GARDENS

## GREATER ACADEMIC SUCCESS AND STUDENT ENGAGEMENT

For students who struggle in the standard classroom setting, academic success can improve dramatically when linked with outdoor learning. Garden classrooms are versatile spaces for teaching diverse subjects with greater creativity than is accessible through an indoor classroom. Forty-eight studies between 1990 and 2010 reported on twenty-five unique learning outcome categories, including direct academic improvement in science (93% of studies reporting), math (80%), and language arts (72%), as well as indirect outcomes such as social development, improved attitude towards academics, motivation, and school bonding (Williams, 2013). Of 4,184 California public school garden programs surveyed, the subjects most frequently taught outdoors were science (95%), environmental studies (70%), nutrition (66%), language arts (60%), and math (59%) (Ozer, 2007).



*Research points to a strong association with student engagement as an explanation for academic success.*

Results are consistent across programs, student samples, school types, and disparate research methodologies. As a possible explanation for why, research shows that school garden programs strengthen student engagement with academic work (Marley, 2022). Engagement with academic work is defined as constructive, enthusiastic, willing, emotionally positive, and cognitively focused participation in learning activities (Skinner, 2012).

Outdoor classrooms enable educators with hands-on opportunities to transfer classroom discussions to practical skills. The GeoScience Garden at the University of Alberta is an outdoor simulated field environment where students develop field observation skills from an accessible campus environment, preparing them for field courses at more remote locations. Surveys of students interacting with this outdoor classroom reported significantly greater satisfaction with their ability to collect field data (Waldron, 2016).



# THE BENEFITS OF SCHOOL GARDENS

## ENHANCED SOCIAL SKILL SETS AND ECOLOGICAL COMMITMENT

School gardens provide a unique opportunity for students to form social connections across diverse backgrounds through experiential learning all while influencing school policies and culture.

Urban agriculture education programs prepare youth for future civic engagement by enhancing their understanding of social justice, community assets, and building their leadership skills (Russ, 2021). Bringing students of diverse backgrounds together through a memorable educational experience sets outdoor classrooms apart from traditional classrooms. Several studies communicate this benefit, describing it as acquiring an “ecocentric identity” in which students perceive themselves as interlinked within the web of nature, a “positive environmental communication” (Millstein, 2023), a “social-ecological-transactional perspective of human development” (Ozer, 2007), and a place to “foster leadership for sustainability through a transformational education process” (Burns, 2015).

A school garden acts as a “systemic intervention”: an agent of change promoting health and well-being, contributing to a more positive school environment (Ozer, 2007). Gardening programs promote connections between children and adults, and between schools and communities (Bice, 2018). Campus gardens influence school curricula and policies to be more environmentally focused. Policy improvements include incorporating garden food into school cafeterias (Calamidas, 2020) and integrating with Farm to College programs (Merrigan, 2008).



*Student food distribution to the Lobo Food Pantry, 2023.*

# THE BENEFITS OF SCHOOL GARDENS

## IMPROVING STUDENT HEALTH

Childhood and adolescent obesity have been on the rise in the United States since the 1970s, currently situated at a shocking 34% (Monferrer, 2022). In response to an increasingly sedentary lifestyle and disconnection of the youth from the natural world, school gardens, and nutrition programs act as an intervention point, leading to improved dietary intake and reduced blood pressure (Davis, 2013). Growing food in conjunction with a nutrition curriculum encourages students to make healthier nutritional choices. Nutrition-related benefits of school gardens include increased nutrition knowledge (Calamidas, 2020), increased fruit and vegetable consumption (Kim, 2020), and improved attitude toward, increased preference for, and willingness to try fruits and vegetables (Chan, 2022; Savoie-Roskos et al. 2017). Eight studies between 1990 and 2007 on garden-based nutrition intervention programs reported the ability to identify food groups, recognize the benefits of fruits and vegetables, have an increased likelihood to cook, and have an appreciation for other individuals and cultures (O'Brien, 2009).

Food insecurity is a common barrier to academic success for college students. Reported rates of food insecurity among college students range from 20% to 60%, up to 3 times higher than that of the general U.S. population (Ullevig, 2021; Nazmi, 2019). This was no exception for UNM students - 32% are food insecure (Cargas, 2020).

To address food insecurity on campus, students at a university serving a primarily Hispanic population co-created their campus garden with a campus food pantry. They attributed the success of this collaboration to sustained funding from a nominal yearly student fee and management by a clearly defined organizational structure consisting of students, faculty, and staff from various departments that represent nutrition, sustainability, and environmental health (Ullevig, 2021).

Farm-to-college programs are rising, and universities are implementing the 'buy local' movement on campuses.

These programs create connections between classrooms, cafeterias, and campus gardens by involving faculty, students, cafeteria workers, administrators, and farmers in activities that support good health, nutrition, agriculture, and the local economy (Merrigan, 2008). Farm-to-college programs dramatically increase the fruit and vegetable servings students consume using a meal plan in the dining hall (Joshi, 2008). Yale University's popular Farm-to-College program gives it a competitive edge over other Ivy League schools because prospective college students seek schools committed to sustainability (Merrigan, 2008).

32% of UNM  
students are  
food insecure.

- Cargas, 2020



# THE BENEFITS OF SCHOOL GARDENS

## UNIVERSITY ROLE IN FOSTERING SUSTAINABILITY

To continue being relevant in a leadership position, Universities must adapt to rapidly shifting global, societal, and systems changes. They must shift their approach to shaping students in their formative years to prepare them for successful civic engagement roles. Tema Milstein's experience initiating the Lobo Garden as a class project leads her to believe that the interactive nature of campus food gardens lends students an opportunity to acquire "positive environmental communication": discourses that hearten, inspire, encourage, and engage sustainable and restorative ways of being (Milstein, 2023). Milstein believes that student participation in grassroots planning and management of food gardens provides a material and symbolic transition space that experientially expresses and manifests sustainability transformations far beyond the garden's boundaries.

Sustainability must be a multi-departmental practice, not just a degree focus.

Campus gardens are interdisciplinary zones that facilitate growth relevant to all students, as the skill sets acquired reach beyond simply growing food. The typical university educational experience relies on classroom-based reading and writing almost exclusively. Academic and campus garden advocate Cathy Sherry explains the collegiate rejection of outdoor learning, stating, "research metrics, hiring and promotion policies, as well as deeply held assumptions about what it means to be intellectual or educated" (Sherry, 2022).



The interactive nature of the Lobo Garden, 2022.

# THE HISTORY OF THE LOBO GARDEN

*The garden began as an experiment, a movement, and an educational process through which students learned how to change the status quo. Historically, only when student initiative and faculty support align with administrative acknowledgment of value has Lobo Garden inched forward as a campus resource.*

The history of UNM's Lobo Garden highlights the critical role of partnerships between students, faculty, and administrators. I compiled it using interviews with previous faculty and administrative stakeholders instrumental in founding the garden. Mary Clark, the Sustainability Manager on the Facilities Management Team, oversees groundskeeping and maintenance; Andrew Marcum, a graduate student instructor; and Tema Milstein, Associate Professor. Teresa Costantinidis, UNM Executive Vice President of Finance and Administration, and Travis Broadhurst, GPSA Sustainability Director, were interviewed for their perspective on current UNM sustainability initiatives.

Lobo Garden began as an experiment, a movement, and an educational process through which students learned how to change the status quo. Historically, only when student initiative and faculty support align with administrative acknowledgment of value has Lobo Garden inched forward as a campus resource.

The garden was initiated in 2010 after earlier attempts to grow food on campus met administrative resistance. Previous student Travis Mackenzie tried unsuccessfully to organize a campus community garden four years earlier (Riley, 2010). Before Lobo Garden, the last time food had been grown on campus was seventy years earlier in a World War II victory garden (Milstein, personal interview, 2023). Under decades absent of campus tending, the baseline of environmental and cultural norms shifted. UNM administrators now viewed the idea of campus food production as a liability risk and outlier unnecessary for campus life. For example, they were concerned that garden-grown food might be poisoned and make students sick (Milstein, personal interview, 2023). Therefore, the original campaign was challenged to shift what administrators considered a legitimate educational environment where the academic benefits outweighed perceived risks.

In 2010, several formal and informal attempts to establish a garden converged in a perfect storm of social change. First, students guerilla-planted rogue gardens throughout the highly manicured campus grounds. The initial spark of student and administrative interface ignited when UNM's Facilities Management team ripped out an unauthorized vegetable garden planted by a student who lived in a campus residence hall. Key stakeholders Andrew Marcum and Tema Milstein recall the student was inspired to start the garden due to their class content in the Sustainability Studies Program. Students gathered to dig up and transfer the vegetable plants on the removal date. The Daily Lobo newspaper arrived to amplify the story, increasing pressure on the administration to honor student desire for a campus garden space.

Meanwhile, the student group Seeds of Rebellion was busy searching for land for their separate community garden idea. Faculty at UNM's Research and Service-Learning Program (RSLP) were also searching for land and faculty to initiate a campus garden, though neither group was connected.

Following the story's publication, Facilities Management offered the student a formal opportunity to find a location for an official campus community garden space, but the student declined. Andrew Marcum, a graduate student and TA instructor, was the first to engage with the Facilities Management team through a formal process to create a garden. Marcum saw the project as an opportunity for his students to learn about land use and social movements through his course 'Social Movements in America' under the Department of American Studies.



# THE HISTORY OF THE LOBO GARDEN

The event became a class discussion. He wondered about the administration's implicit values influencing their reaction to eliminate the unsanctioned garden. *"Why is it that the university is resistant to students engaging in experiential learning? [The project] can benefit the community, contribute to knowledge about how we use land and resources to support basic human needs and promote equality, access, and opportunity."* (personal interview, March 22, 2023).

Marcum and his class leveraged the campus garden project as an experiential learning opportunity. *"We used the garden space and the advocacy involved in creating it to understand community organizing and social change."*

Students presented a garden proposal to the Facilities Management Team as their semester final project. Their presentation included an educational mission and vision statement, addressed previous food safety concerns, and assessed several potential sites to determine an official campus garden site.

In 2011, the site behind the Real Estate Department was established as the Lobo Garden. It was bare, eroding dirt and sparse wild grasses at the time. Assistant Professor Tema Milstein's 'Language, Thought and Behavior' class was the first to break ground, build terraces, and prepare the land for planting. The timeline moved quickly – the students planted seeds by the end of the first semester.

Between 2011 and 2014, the garden was maintained by classes 'Social Movements in America and 'Sustainability Studies' every Fall and Spring. Marcum, who now serves as an Academic Director at CUNY, recalls the academic benefits of his class engagement and unique opportunity for applied learning beyond the traditional classroom setting:

*"It was an interesting and challenging time. I was teaching something in a completely different way and learning new skills at the same time as my students. But it was also fun – it was exciting to go outside and not just sit around in the classroom. We were solving the logistical challenges of building something meaningful on a college campus and within an institution that does not focus on experiential learning."*



***Why is it that the university is resistant to students engaging in experiential learning?***

# THE HISTORY OF THE LOBO GARDEN

Milstein remembers this first class had “tremendous academic benefit,” and her students said it was their best class. Students learned theory and discourse in the classroom and then applied it in the garden through becoming change agents.

Mary Clark details her decade of involvement as a liaison between Lobo Garden and the Facilities Management team. She explains that the Garden has always been a student-driven initiative needing administrative support to thrive. “Facilities Management empowered students to implement the garden - there’s no better way to learn than hands-on.” Historically, this support has included expertise and oversight from the Facilities Management team when installing permanent infrastructure. Clark identifies the professional learning applications for students involved throughout the process as essential to the learning process offered in a university setting and that backing these student-led initiatives is the most valuable thing administrators can do.

Clark’s insights provide essential context to understand the diverse stakeholder roles needed to integrate the Lobo Garden as a well-utilized campus resource. She understands the garden’s value, saying, “There’s nothing else like it on campus. It’s the perfect place to hold events.”



The origin of the campus garden highlights a unique and powerful educational opportunity that is both the history and the legacy opportunity of an experiential academic space.

UNM’s Sustainability Studies is the new academic home of the Lobo Community Garden since 2022. The transfer to Sustainability Studies provides greater administrative support than has been available for many years. For the first time, a faculty member oversees the multi-year planning for the garden alongside a faculty team encouraging their students to volunteer as part of course connections.

**Expanding Lobo Garden onto the adjacent lawn could increase visibility, food production, and campus integration.**





## RESEARCH METHODOLOGY

In my background research, I found only three studies that evaluate criteria for the long-term success, integration, and institutionalization of school gardens. The first criteria for program evaluation are physical maintenance, academic connection, and administrative value through school policies and events (Ozer, 2007). Developed by researchers at Columbia University and derived from empirical data, the GREEN tool captures how school gardens are effectively established, integrated, and sustained. (Burt, 2017; Figure 1). This study shows that at the deepest level of integration, programs must create school-wide food and environmental policies, utilize robust organizational structures, and have an evaluation process of their goals.

I used these domains to determine my interview questions and criteria for selecting programs to interview (Appendix B). I used the GREEN Tool Scale to rank and analyze the current integration level of the Lobo Garden (Appendix C). While overall integration scored low - when I categorized the questions by stakeholder (admin/faculty/student) responsibility, I found the low score came from a lack of administrative participation (Appendix B).

I conducted twelve interviews with university garden program leaders across the United States, detailed in the 'Findings' section. I completed seven interviews with University of New Mexico administrative leaders or campus garden advocates, which are described in the 'History' section.

Each interview lasted 45 minutes over telecommunications with program managers ranging from hired staff, professors, and retired coordinators. A program manager is directly involved with program operations and knows its history. I included representation from both private and public universities. I transcribed each interview and used qualitative (inductive) coding to find patterns and themes that strongly emerged after the first few interviews.

I divided the GREEN tool's integration domains into Level 1 and Level 2 interview questions (Appendix A), and I questioned each program manager to document the year established, acreage and location on campus, groundskeeping involvement, summertime maintenance, food distribution, academic connection, operating budget, funding source, leadership structure, department housed.

**A “well-integrated” campus garden program met the following criteria:**

- (1) Established for more than five years
- (2) An academic connection: integrated with more than one aspect of learning (i.e., not just a club)
- (3) Diverse involvement of stakeholders
- (4) Stratified budget categories

There were **2 question levels** for each school. Level 1 included information about **the physical garden, school community, and history**, and level 2 included information on **student experience, resources, and support, including management and overcoming challenges** (Appendix A).

# RESEARCH METHODOLOGY

## How to read the GREEN Tool

The shaded rings illustrate stages of integration. A school garden can operate simply with the outer ring of components, but the garden would merely be established, not well integrated. A school garden that included both the external and middle ring of components could be incorporated into a school, but the garden would likely need to be sustained. The innermost ring's components are often addressed last in integrating a garden, leading to the garden becoming an institutionalized part of the school.

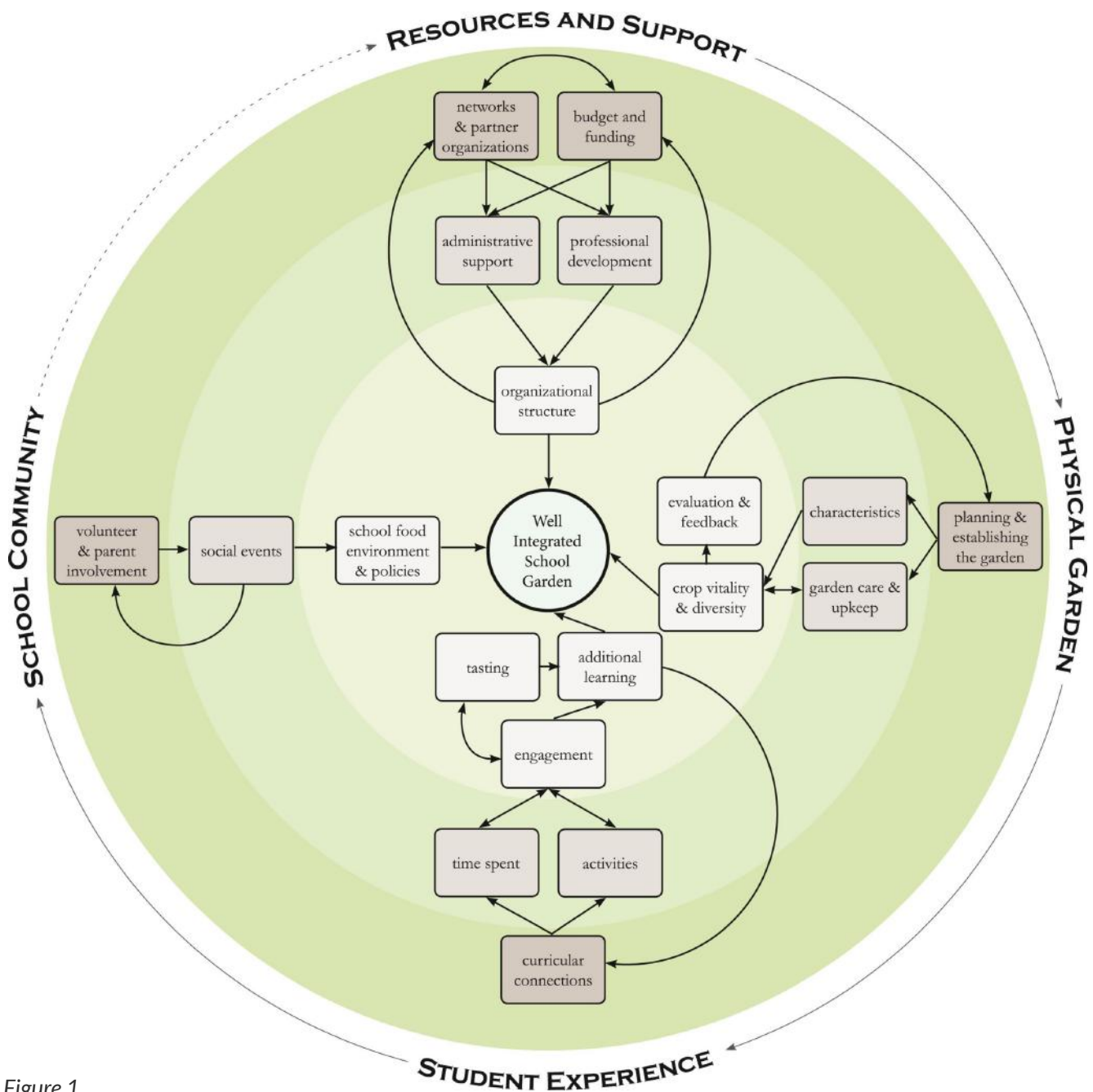


Figure 1

# FINDINGS

## CASE STUDIES: INTERVIEWS WITH TWELVE U.S. GARDEN PROGRAMS



## FOUR COMMONLY REPORTED PROGRAM STRENGTHS

### 1. High Student Retention and Engagement

Students initially introduced through classes frequently return for volunteering. When students become alumni, they donate both money and time. All six student-initiated programs had previous students holding a staff position, creating an essential throughline for institutional knowledge of program stewardship. One manager said, *“The garden is the vehicle, not the end. People come to the site, and the feeling captures them.”*

Engagement blossoms beyond what traditional classrooms can offer. Regarding student leadership, one coordinator said, *“Gardening is only half of it. Students also gain valuable experience to prepare them for the workforce such as communication, group problem solving, and independent motivation.”* When student engagement has room to express itself creatively, managers reported unexpected positive outcomes like significant donations, unique academic connections, and keynote visits from international thought leaders.

Student enthusiasm was evident in sentiments such as, *“Even when it’s cold or raining, the students want to be outside!”* When students are enjoying themselves, they are more open to discussing pertinent subjects that are emotionally taxing, such as climate change or racism. *“There’s something about sitting in a garden that you can have harder conversations, and it feels natural.”*

### 2. Diverse Academic Connection

Gardens enrich the expected classes like horticulture, plant pathology, and agroecology - but universities also connect courses in religion, theater, meteorology, psychology, art history, and music.

### 3. Multiple Funding Streams

Universities that support their garden programs with internal funding do so through multiple funding streams. They use food contracts, revenue from produce sales, student fees, and the Vice Chancellor’s Office.

### 4. Median Program Budget \$12,500

Nine programs operate under \$15,000 for operational costs, with a median program budget of \$12,500.



# FINDINGS

## CASE STUDIES: INTERVIEWS WITH TWELVE U.S. GARDEN PROGRAMS

### KEY FINDINGS

Five Barriers Campus Garden Programs Commonly Experience:

1. Incomplete Administrative Support
2. Unpaid Labor and Informal Management
3. Unstable Funding
4. Inadequate Student Input Process
5. Lack of Program Oversight

8 OF 12 PROGRAMS ARE NOT ADEQUATELY SUPPORTED BY ADMINISTRATORS



7 OF 12 MANAGERS GIVE UNPAID LABOR

8 OF 12 PROGRAMS ARE CHALLENGED BY INCONSISTENT FUNDING

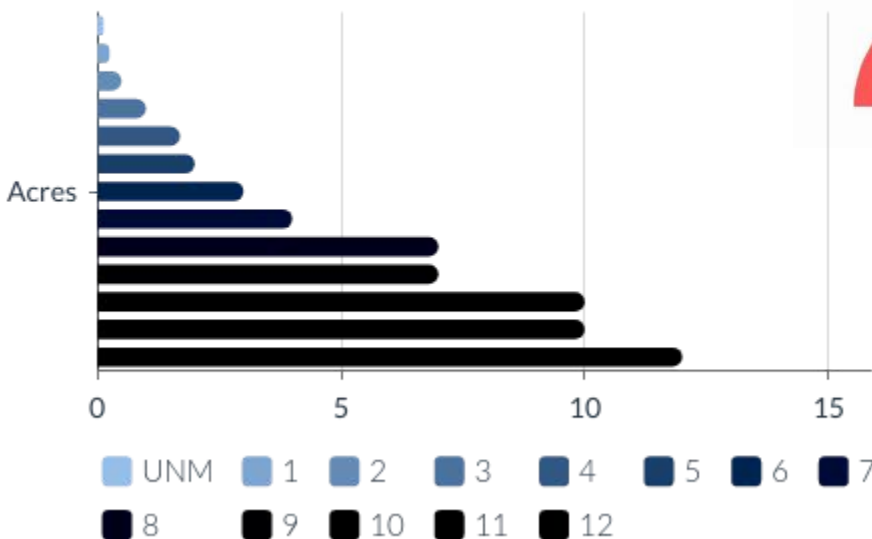


5 OF 6 STUDENT INITIATED-PROGRAMS EXPERIENCED PROVING LEGITIMACY AND A LACK OF PROGRAM OVERSIGHT.

ONLY 1 PROGRAM UTILIZED A STUDENT INPUT PROCESS



UNM has smallest program acreage of Universities interviewed



Program Interviewed (given anonymous number)

# FINDINGS

## 1. INCOMPLETE ADMINISTRATIVE SUPPORT

Programs experience adversity when administrators fail to support their gardens as a learning space. A commonly stated example is that university administrators showcase campus gardens in marketing campaigns to prospective students as proof of their commitment to sustainability. Yet, eight of twelve program leaders expressed their programs are not adequately supported. One leader explained, “We are the crown jewel of [our school]. We draw people to the college. But we also must fight for our existence from year to year.”

Five programs receive no internal financial support from the school and rely on grants, unpaid labor, or revenue from produce sales. However, for minimal financial investment, campus gardens are a generative space for experiential learning and community engagement, which diverse departments utilize. Nine programs operate below a \$15,000 annual budget for events, workshops, and materials for acres of food production and distribution (Appendix C).

A minority of four programs reported they partner with Facilities Management. Involving the Facilities team to provide oversight and expertise increases the program's institutionalization ability because it creates cohesion across the campus landscape. However, garden programs set themselves apart from Facilities Management by agreeing on sovereign areas of maintenance and responsibility.

Three managers reported that administrators are concerned that growing spaces are visually divergent from the “desirable” highly manicured campus aesthetic. Messy gardens represent the student experiential learning process, which contrasts with a product-oriented, controlled space more like a golf course. Three managers solve this by posting signage that indicates the space is student-led and experimental. Their garden perimeter is maintained to have a manicured look.

Nine program managers report that their administrators initially viewed campus gardens as a liability before a lengthy process of creating trust. Administrative concerns center on food safety risks and injuries from improper or unsanctioned use of the space, such as homelessness in urban areas. Instead of disinvesting in campus garden programs to avoid risk, risk is best avoided through proactive management and planning. The two programs interviewed which seemed to have the most minor administrative barriers (well-funded, diverse department use) were Dean-initiated.

Programs that sell or distribute produce avoid liability by securing food safety certifications and volunteer safety training. One program located in an urban area mitigates risk through a separate \$500/year funding source in case unforeseen circumstances, such as vandalism, occur. No programs reported a death or significant damage to the site in their combined 219 years of operation; therefore, liability concerns are helpful to anticipate for planning purposes but should not prevent the development of a program.



**“We are the crown jewel of [our school]. We draw people to the college. But we also must fight for our existence from year to year.”**

# FINDINGS

## 1. INCOMPLETE ADMINISTRATIVE SUPPORT

### What can administrators do to support campus gardens?

Program Managers interviewed weigh in with examples:

- A Marketing and Advancement Office that **fundraises for the garden** by selling student-created value-added products to donors
- **Professional development training** for faculty wanting to utilize the outdoor classroom
- Funding **infrastructure for amenities**, such as shade and seating. An outdoor pizza oven increased student participation at one university
- A **nominal student fee** feeds into a Green Initiatives Fund that student groups apply to garden
- **Listing the outdoor classroom online** to be booked by interested faculty
- A **farm tour included in school orientation** with a short workday



# FINDINGS

## ADMINISTRATIVE SUPPORT AT UNM

Lobo Garden only moves forward as a campus resource when administrators and Facilities Management support it. The garden is experiencing increasing administrative awareness, leading to support and institutionalization within UNM.

UNM's 2022 Impact Report featured the Dean of Arts and Sciences planting at a student-organized, faculty-backed event. This show of goodwill is a step in the right direction. Administrators gain a working knowledge of the program's benefits and shortcomings through engagement in their power to change. Attending garden events is also an excellent opportunity to connect with students. The Dean's visit puts Lobo Garden in an excellent position to expand the program's reach and ahead of two other programs interviewed, reporting their administrators have never attended a campus garden event.

Lobo Garden benefits from strong working relationships with the Facilities Management team who provide valuable land management oversight and expertise. In previous years, the Facilities Team interacted with students through workshops and installations, providing a caliber of professionalism to the garden program. I suggest a detailed list of Administrative roles and action items on page 25.

For minimal financial investment, campus gardens serve as a generative space for experiential learning and community engagement, which diverse departments can utilize. The operational costs of Lobo Garden could remain low compared to other university initiatives. UNM's solar panel initiative costs at least \$350,000, and its brand-name zero-waste reusable container kiosk costs \$15,000 per kiosk (GPSA Sustainability, personal interview, 18 September 2023). 9 of 12 gardens operate on a budget below that \$15,000 price tag.

The garden infrastructure needed to facilitate learning is low-tech. One program over 40 years old uses simple straw bales as student seating. When the bales begin to decompose, they utilize them as mulch and refresh. I do not include staff salaries in this analysis because program structures were so varied (Appendix C) that it is hard to conclude from this data set. I found that well-integrated programs use diverse income streams, which I will discuss in detail in the Funding section. However, improvements to Lobo Garden's outdoor infrastructure are necessary.

What does the UNM campus communicate to students about the appropriate relationship with nature? What ecocentric identity do students develop during their time on the UNM campus? As designed spaces, the intentional placement of infrastructure communicates a value system. The manicured lawns and oversized cement sidewalks reinforce a separation from, or dominion over, the natural world. Students may appreciate the UNM campus as an arboretum or lush refuge from the sun, yet it can't provide the immersive and participatory experience a garden ecosystem can. Administrators can make a clear commitment to Lobo Garden by supporting it as an outdoor classroom or risk being left behind in the campus garden movement.

UNM has the smallest acreage allotted to outdoor learning of any University interviewed. For UNM to maintain relevance in a leadership position and hold a competitive edge for prospective students concerned about sustainability, it must expand its experiential outdoor learning program.



2022 Impact Report

# FINDINGS

## 2. UNPAID LABOR AND INFORMAL MANAGEMENT

Campus outdoor classrooms survive through unpaid labor and informal management if they fall outside of administrative support.

Programs started by Faculty reported the highest dissatisfaction with exploitative unpaid labor. Seven of twelve programs say faculty or managers were not paid for all their hours, and five of those seven operate without a coordinator. Non-instructional faculty labor maintains growing spaces, sometimes extensive, including greenhouses, hoop houses, or more than one acre of productive land (Appendix C).

Faculty managers reported their stewardship, in addition to their official research and teaching responsibilities, is considered a “passion project” or “labor of love.” One Associate Professor and informal garden manager explained that all coordination efforts fell to him. “I do it as a part of my departmental service, not a part of my contract. I enjoy my engagement there, but it takes away from my other compensated responsibilities of research and publishing papers.” Another Faculty Professor who initiated her garden through grants and received no university funding explained, “The university doesn’t count my maintenance hours, but if I don’t maintain the garden, I have nowhere to teach my classes. Even during the summer when I’m not on contract, I still manage the student workers.”

Even one manager of a decades-old program reported unpaid labor, “Everybody loves the farm, but nobody wants to give us a staff member.” These programs also experience the additional administrative barrier of unstable funding, leaving professors to spend unpaid hours searching and applying for grants. Programs with formal staff are better integrated with multiple departments –informal management results from a need for more administrative investment in governance and funding for a staff member.

Informal management hinders the passage of institutional knowledge. One Faculty Professor and uncompensated manager commented on holding the entirety of responsibility and institutional program knowledge, saying, “I don’t know what [the administration is] going to do when I win the lottery, die, or retire.”

Program managers reported involving community partners contributes to significant expertise, volunteer labor, and funding. Beyond student volunteers and department faculty, programs utilize local botanical gardens, master garden programs, the agriculture extension office, and non-profits to bolster their programming and available resources.



*"Everybody loves the farm, but no one wants to give us a staff member."*

# FINDINGS

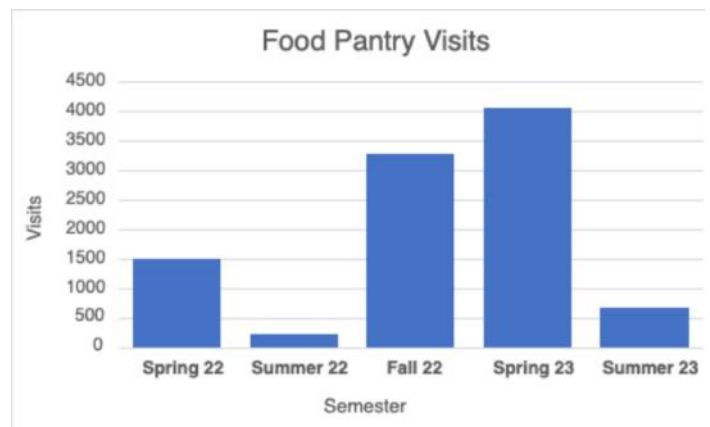
## PROGRAM MANAGEMENT AT UNM

Lobo Garden's management shifted while I was writing this report. It previously employed a graduate student as the course instructor and garden coordinator. I experienced that position as an excellent learning opportunity, but it cannot provide a throughline of institutional knowledge as students like me constantly graduate and move on. As of 2023, a newly appointed faculty liaison will be the first long-term manager providing an institutional throughline for advocacy and multi-year strategic planning. The faculty liaison is compensated for their efforts to bring visibility and student enrollment in Lobo Garden courses and activities. UNM can continue to expand the stability and reach of the Lobo Garden program through several recommendations in the next section of the report.

Department	Class	Professor
Chicano Studies	Curandismo Traditional Medicine	Dr. Cheo Torres
English	Writing About Food & Culture	Dr. Michelle Kelles
Honors Art	Eco-Art: Making Art to Reconcile with the Climate Crisis	Megan Jacobs
Art: LAAW	Art and Ecology	Andrea Polli
American Studies	Social Movements in America	Andrew Markham
Native American Studies	NATV 351: Community-based Learning	Dr. Tiffany S Lee
Geography & Environmental Studies	Information Design in Science and Society	Yolanda C. Yin
Communication & Journalism Department	Language, Thought and Behavior	Tema Milstein
Geography & Environmental Studies	Lobo Gardens Class	Various

I found eight departments previously connected to the Lobo Garden in the years before the COVID-19 2020 shutdown. These faculty and their classes contributed permanent infrastructure to the garden, such as grapevine trellises, terraces, and compost bins, which are still used today.

In 2022, student efforts formally connected Lobo Garden with the campus food pantry. Garden volunteers harvest flowers, herbs, and produce, then deliver them to the Lobo Food Pantry. Since 2022, the partnership has increased the visibility of the garden as a student resource. Food distribution is possible through a grant that provides refrigerators where garden produce can be stored. Student use of the campus food bank is growing each semester. Amanda Martinez, who runs the Lobo Food Pantry, detailed, "Our highest request is consistently fresh produce/fresh fruit." (personal interview, August 7, 2023).



Student use of the food bank grows each semester



# FINDINGS

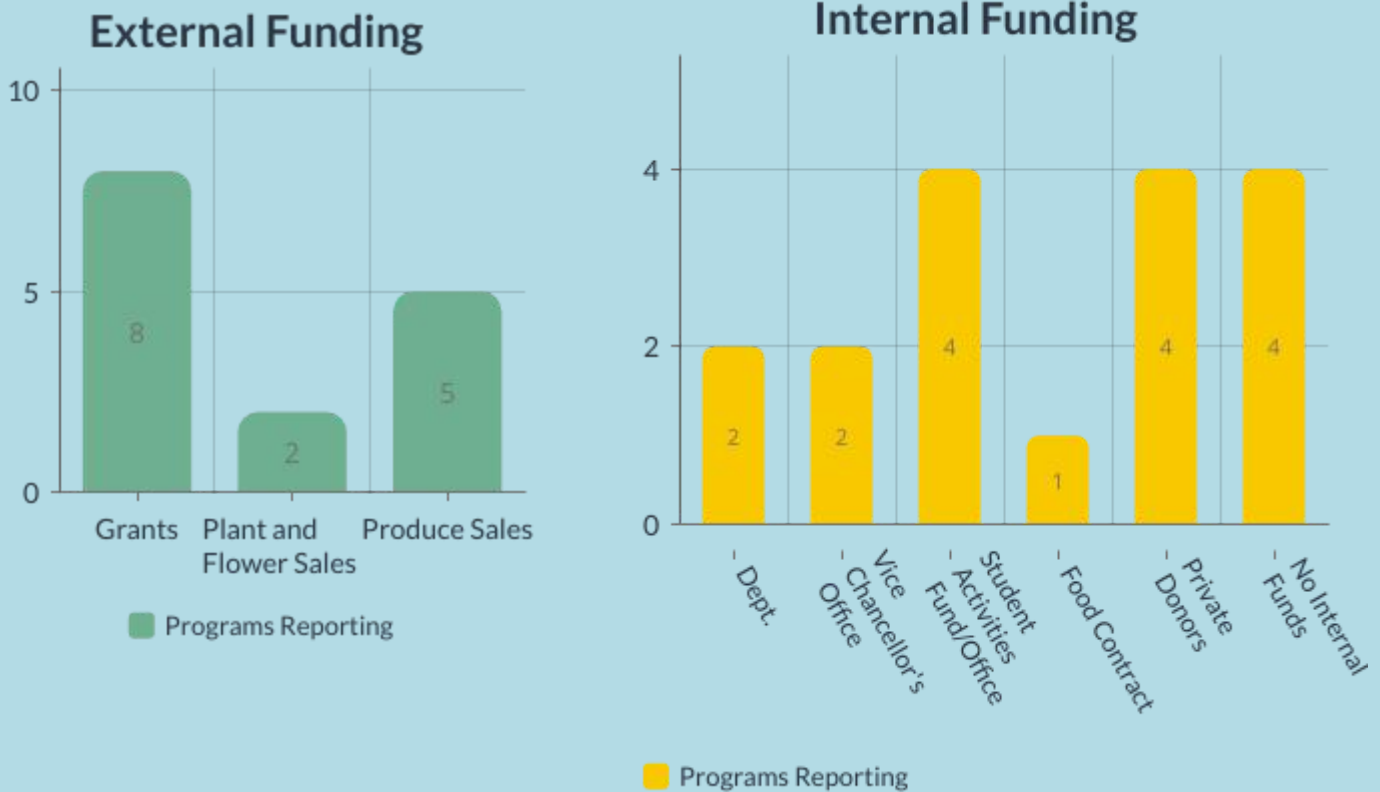
## 3. UNSTABLE FUNDING

Relying on external grants that shift from year to year is a significant challenge for eight programs.

Programs without stable funding focus on produce sales over hosting academic research. Six of the eight programs without stable funding sell produce to university dining halls, local restaurants, and run a weekly farm stand to meet costs. The remaining four programs, consistently funded by their university, use multiple funding streams beyond their department's responsibility to raise. Student Affairs, Residence Halls, Student Community Engagement Centers, Dining Halls, and Agricultural Extensions are all examples of financial contributors (Appendix C). The program with the most academic connections (24+ classes/semester) emphasized the importance of multi-department leadership and funding. Their garden is a multi-purpose space for events, research, and applied learning. This university prioritizes involving as many departments as possible and believes this policy has contributed to their recent approval of an additional 20-acre, 40-million-dollar expansion project.

For all twelve programs, the highest financial burden is staffing. Yet well-integrated programs consider a permanent staff member one of the most essential strategies for success. Programs found funding for staff salaries through a variety of departments, supported by a myriad of leadership structures (Appendix C).

### 12 Programs Report Funding Comes From Diverse Sources

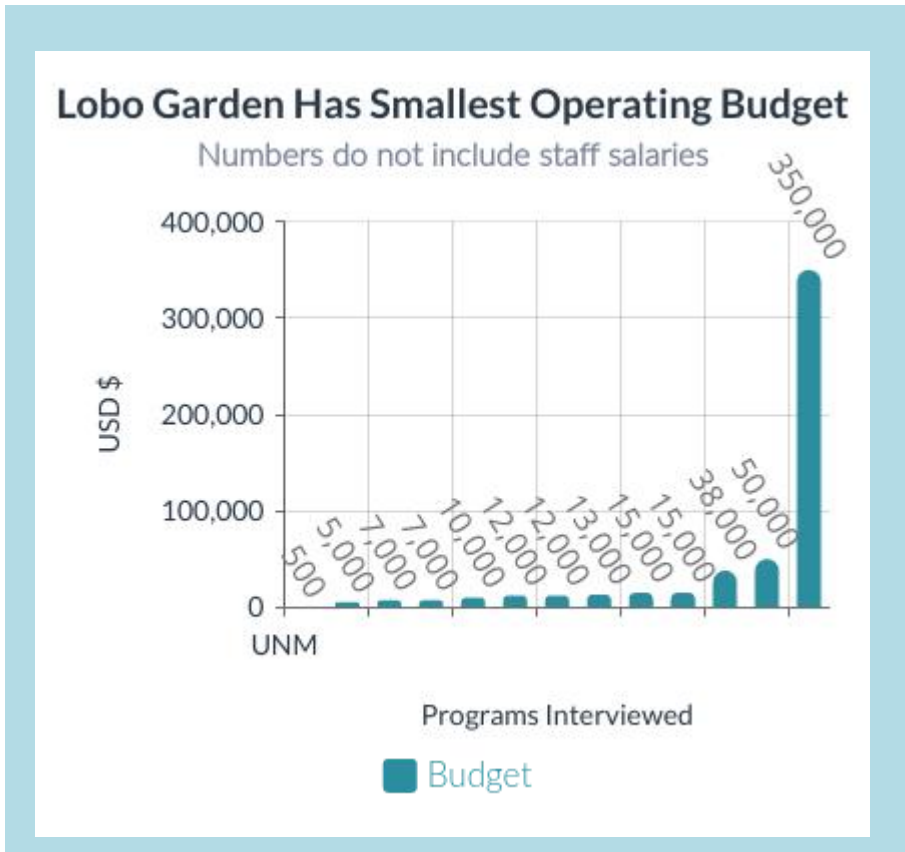


# FINDINGS

## FUNDING AT UNM

Lobo Garden's funding for materials is from the Facilities Management Department. I estimated it at about \$500 annually. The faculty salary and student teaching assistant stipend are currently Dean-supported and previously came from an external grant. During my two years as garden coordinator, I did not know the available budget for purchases or events, which occasionally created confusion about the scope of projects or events I could create.

Moving forward, UNM's priority investments are the outdoor classroom infrastructure, such as seating and shade, and a paid coordinator position not occupied by a student. These additions would help bring visibility and class enrollment because they legitimize the space as a functional outdoor classroom. More visibility and enrollment will bring more funding.



# FINDINGS

## 4. INADEQUATE STUDENT INPUT PROCESS

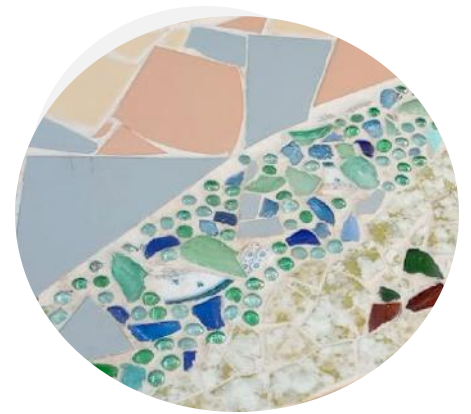
The working relationship between students, faculty, and administrators is critical to developing projects for academic connection and community engagement. While student enthusiasm rings clear, eight managers believe their administrators are dragging their feet in taking a supportive role for student experiential learning:

“Campus administrators want to be viewed as if they are doing something about sustainability. But when it comes to students proposing ideas, there is certainly a feeling of distrust that ideas are not coming from a professional. In my work, I noticed a student group pushing a sustainability initiative for a few years. Still, it wasn’t until [my department] backed it and created a potential budget that it became credible to the administration.”

Administrators may view students as unprofessional and need more trust in their organization. One student organizer turned part-time staff manager said, “We were actively trying to get squashed for many years, but now there’s a good number of faculty and administrators who look out for us.” Trust is gained when students organize themselves into official groups backed by faculty, create roles of responsibility, and follow through.

An Adjunct Professor and campus farm manager wondered if mistrust explained the slow pace of administrative engagement with student ideas to the point of delaying action until past student graduation. They wondered if the delay was intentionally meant to fragment and create a lack of activism on campus.

Only one program used an official student input process: a project proposal form for students to submit to their coordinator. Their process was guided by a set of values determined by an Advisory Board that included diverse, cultural, and student-led groups.



*Campus administrators want to be viewed as if they are doing something about sustainability. But when it comes to students proposing ideas, there is certainly a feeling of distrust that ideas are not coming from a professional.*



# FINDINGS

## STUDENT INPUT PROCESS AT UNM

Support and collaboration are growing within faculty and administrator roles. For example, Facilities Management already provides excellent oversight for installing infrastructure such as fruit trees and irrigation. Faculty are making academic connections for applied learning in the garden through student capstone projects and class credit for garden volunteer hours.

Student engagement increased over the last two years. Some students became consistent volunteers and attended weekly open hours. Students are excited to participate in stewarding the garden and are taking the initiative to use the grounds to practice their academic and leadership skill sets. There are numerous examples of this. One student studying film made a commercial for the garden (Boyd, 2021), an architecture student created a professional site plan for a proposed outdoor classroom, and another student who worked at UNM's Outdoor Adventure Center designed and taught a weekend workshop in the garden using what he learned in the Lobo Gardens class.

However, students also operate within a grey area of understanding how their garden ideas can be implemented. As the garden coordinator, no boundaries were communicated to me for budget or guidelines for actualizing student ideas. A student input process is advantageous because students are the first to identify essential projects by spending the most time in the garden. Students identified infrastructure needs such as ADA accommodations, shade, and bike racks. They imagined creative projects that would contribute to the garden's biodiversity and community engagement, but these projects aren't always installed without a student input process.

The University must create guidelines for student input to meet its goal of increasing enrollment in the garden class.

*Student engagement, Spring 2023*



# FINDINGS

## 5. LACK OF PROGRAMMATIC OVERSIGHT

I define a 'lack of program oversight' as a decision-maker's failure to solve challenges inherent in their programs. I found that five of six student-initiated programs need more program oversight. Two Dean-initiated programs reported they were well-supported and integrated, shifting priorities with the seasons to meet the needs of the garden plants and student school schedule.

Student-led garden campaigns reported one barrier to oversight: Grounds Team workers are concerned that it will become their responsibility if the garden program falls through or when students graduate. Deciding who is responsible for what amongst stakeholders and creating accountability solves this concern and supports worker solidarity.

As one Program Coordinator emphasized, "If we're going to work in food justice, we need to think about the [Grounds] workers and not just see them as grumpy people preventing our visionary ideas. They're going to be there after we've graduated and gone."

Seven schools operated in a "grey area" for years; there was little or no awareness from the school about the program's activities, or the administration was actively trying to prevent the garden's establishment. Programs reported that oversight stabilizes by developing advisory boards, working groups, feasibility studies, strategic plans, and handbooks. Advisory boards ensure that departments are connected and engaged around campus. They are most effective when comprised of diverse stakeholders outside of the university, such as city planners and indigenous land stewards. Advisory boards can create handoff documents and strategic multi-year plans. It is advantageous for boards to establish early on a program's mission and vision statement, as several program managers reported friction between departments over their garden's purposes.

Working Groups more closely relate to daily operations and involve student groups. One program with high student engagement (up to 500 volunteers/semester) detailed they use a "do-ocracy" where students with greater participation hours have greater decision-making privileges.

Programs must solve the inevitable transience of students. Programs reported employing students in positions of two to four years for less training time. All programs had at least one person in charge who was not a current student. Summertime maintenance was non-existent for three programs; the remaining nine hired 1 - 2 students to maintain via grants, internships, and Federal work-study or used community partnerships.

### Key Findings:

Well-integrated programs use multiple types of governance:

- Advisory Boards
- Working Groups
- A Staff Coordinator



# FINDINGS

## PROGRAM OVERSIGHT AT UNM

Administrative investment clarifies Lobo Garden's purpose within its newly appointed home of the Sustainability Studies minor. The rehoming brings more academic connections and volunteer recruitment. Garden management is now included in reoccurring team meetings between faculty and student coordinators.

An Advisory Board is forming and plans to meet in Spring 2024. It will include a diverse group of decision-makers without the school and the broader community. The advisory board will update the garden's mission, vision, and establish annual goals. The advisory board will need to aid in long-term planning. It must collect data on engagement, find paid opportunities for students, amplify academic connection as well as multi-department use.

### Identify and Solve for:

- Summertime maintenance
- Risk mitigation
- Student transience
- Land Use and planning
- Governance
- Student input processes
- Food distribution

Lobo Garden scored as "Moderately Integrated" on the GREEN Integration Scale (Appendix B). I arranged the questions by responsibility and found that administrator participation scored low for six of the six questions assigned to them. Faculty scored low for four of six and moderate for two of the six questions assigned to them. The student role scored high for four of six, moderate for one, and low for one of six questions assigned to them.

These questions and their UNM-specific answers illuminate areas for growth and could guide the garden's newly established governance to identify action steps and set goals to achieve institutionalization. Specifically, these questions, when arranged by stakeholder role, show where more responsibility of stakeholders can benefit the program. The questions could also be revisited for future evaluation and feedback.



## SUMMARY: SOLVING FOR ADMINISTRATIVE BARRIERS



1. With minimal financial investment, campus gardens are generative experiential learning and community engagement spaces that diverse departments must utilize.
2. Instead of disinvesting in campus garden programs to avoid risk, it is best avoided through proactive management and planning.
3. Broad governance, including at minimum one paid staff position, increases a garden program's capacity to thrive long-term.
4. Provide students with guidelines and oversight for implementing projects to institutionalize the Lobo Garden.
5. Clear stakeholder roles of responsibility and accountability to solve administrative concerns.

## SUMMARY: LOBO GARDEN PROGRAM STRENGTHS

1. Lobo Garden is experiencing increasing administrative awareness, leading to support and institutionalization within UNM.
2. Strong relationships with the Facilities Management team, who can provide oversight and expertise.
3. Previous relationships with UNM Food, La Posada Dining Hall, eight departments, and the broader community, such as non-profits and neighbors, can be reactivated for funding, volunteers, events, and supplies.
4. A newly appointed faculty liaison is the first long-term manager to provide an institutional throughline for advocacy and strategic planning.



# RECOMMENDATIONS

## AT A GLANCE

1. Expand the food production and outdoor classroom area
2. Clarify roles between stakeholders for good governance
3. Increase visibility through partnerships

## 1. EXPAND THE FOOD PRODUCTION AND OUTDOOR CLASSROOM AREA

The lawn bordering the garden could expand the food production area by close to three times its current size, increase visibility and student engagement, and provide space for additional garden-classroom benefits such as research plots, outdoor classroom seating, community gathering space (e.g., pizza oven), indigenous garden, pollinator garden, and more.



Expanding Lobo Garden onto the adjacent lawn would increase visibility, food production, and campus integration.

# RECOMMENDATIONS

## 2. CLARIFY ROLES BETWEEN STAKEHOLDERS FOR GOOD GOVERNANCE

Clarifying stakeholder roles alleviates concerns of risk or liability by enforcing accountability and contributes to better collaboration. These roles are based on what other programs are accomplishing.

### Administration: University Leadership

#### Role:

- Oversee marketing and advertising
- Value long-term financial support of the garden program
- Planning for security and safety

#### Action Items:

- Add Lobo Garden to the official university map
- Create a permanent coordinator position
- Include Lobo Garden in official school policies, UNM Food contract
- Approve infrastructure for an accessible outdoor classroom: ADA considerations, bike rack, shade, and seating
- Support Faculty to find consistent funding ex. Nominal student fees that pool in Green Initiative Fund for garden

### Facilities Management

#### Role:

- Provide expertise and oversight on permanent infrastructure installations

#### Action Items:

- Identify maintenance standards

### Faculty/Advisory Board

#### Role:

- Amplify and guide student-led initiatives to legitimize student ideas
- Cultivate research opportunities
- Adapt curriculum to have experiential components in the outdoor classroom

#### Action Items:

- Diversify academic connections to Lobo Garden by involving additional departments
- Create diverse avenues of student access (work-study positions, grant-funded internships, community service workers)
- Create a formal student input process

### Students/Coordinator

#### Role:

- Organize events and workshops
- Increase and maintain partnerships
- Build visibility
- Enhance food production

#### Action Items:

- Work with GPSA Sustainability to achieve State Capital Outlay Request funding
- Create an official Lobo Garden club group for better access to administrators



# RECOMMENDATIONS

## 3. INCREASE VISIBILITY THROUGH PARTNERSHIPS

### THE LOBO FOOD PANTRY

There is a targeted need for UNM administration to bolster this partnership through policy and expansion of the growing area, which is the smallest of any university growing space reported in this paper. The collaboration between the garden and food pantry can increase capacity building, visibility, and student volunteers.



### ESTABLISH AN ADVISORY BOARD FOR GOVERNANCE AND FUNDING

The committee should span multiple departments, including a student representative, community partners, and allied administrators. Use this board to craft a mission and vision and identify specific stakeholder responsibilities. Well-integrated programs have boards that create guiding documents. For example, the University of Portland's 3-year strategic plan details reporting, feedback, student involvement, quarterly events, partnerships, strategic goals, and work plans (SCS, 2020).

Advisory Boards must pick a primary focus for land use. Will the program function as an outdoor classroom, market farm, public event space, or research? Two program managers warned that disputes could occur when land use and planning visions clash amongst departments. Many departments have utilized the Lobo Garden (figure 1), highlighting the potential for continued involvement and stewardship.

### COMMUNITY PARTNERSHIPS

Routine public events and tending hours maximize community engagement. Previously, Lobo Garden benefitted from vital partnerships, with UNM Food, La Posada Dining Hall, eight departments, and the broader community, such as non-profits and neighbors, can be reactivated for funding, volunteers, events, and supplies. They can be revitalized through investing in clear leadership structures.

Organization	Role	Status (2023)
Valle De Oro	Guest speaker, Grant writer	Active
Monte Vista Elementary	Garden tours/volunteer	Inactive
Lobo Garden Club	Weekly garden tending	Inactive
Indigenous Food Hub	Special activities	Inactive
Rural Student Project	Monthly garden tending	Inactive
Food is Free Abq	Provide plant starts	Inactive



## CONCLUSION

Outdoor classrooms provide excellent applied learning opportunities beyond the capability of traditional classrooms. As powerful community engagement generators, campus gardens are a unique opportunity for students to build positive ecocentric identities. Students gain collaborative problem-solving skills and individual motivation steeped in positive ecological values. All programs interviewed expressed enthusiastic student participation, correlating with earlier academic studies of K-12 student benefits. When administrative barriers are removed, students, faculty, and administrators co-create thriving, dynamic spaces full of surprising academic connections and community support.

Campus gardens are incredibly productive spaces with almost limitless applications. Twelve universities across the U.S. make diverse academic connections to their outdoor classrooms, enriching the expected classes like horticulture, plant pathology, and agroecology - but also branching out to connect courses in religion, theater, meteorology, psychology, art history, and music. The greater the academic connection, the more support for physical maintenance, student engagement, and funding is available. Campus gardens are prime opportunities for students to practice applied learning, where they can design in a setting with academic guidance and faculty oversight. Like the studio experience or capstone project, students must collaborate in diverse groups, practice data visualization, and facilitate stakeholder or community-led engagement processes in a highly accessible space. I can only speculate why university garden programs experience incomplete administrative support because I did not interview the administrators associated with the reporting gardens. Conducting a deeper analysis could confirm why program managers reported on themes of risk/liability and why administrators of the student or faculty-initiated campaigns do not generally back these gardens financially.

The University of New Mexico risks being left behind in the campus sustainability movement by not legitimizing its campus garden, which is already eleven years old. This report found that UNM had the smallest acreage dedicated to food production and outdoor learning of the twelve U.S. universities interviewed. It also has the smallest budget dedicated to garden operations. By following the recommendations of this report, it can avoid five common administrative barriers, expand the garden's programming and physical plan, revitalize governance, and achieve an incredible opportunity to reach countless students in their formative years who are ready for meaningful projects. Specifically, through implementing administrative support, paid labor, stable funding, a student input process, and program oversight, UNM can finally institutionalize Lobo Garden.

# APPENDIX A

## Criteria for Interview Selection:

1. Availability for interview
2. Longevity, 5+ years
3. Integration with more than one aspect of learning (I.e., not just a club)
4. Diverse involvement of stakeholders
5. Stratified budget categories

## Interview Focus Areas

### Level One Questions:

General Profile- School type, how many years established, acreage, campus location, who established it?

### Level Two Questions:

#### Management

- a. Who manages the garden?
- b. What are the connections to academic standards?
- c. How are faculty involved? What subjects are taught?
- d. How are administrators involved?
- e. Is the garden centered on any campus-wide sustainability commitments?
- f. How do outside partners support?

#### Budget

- a. Annual cost to maintain
- b. Diverse income streams? (grants, donations, school funds)
- c. Cost of initial investment/startup costs?

#### Solving Identified Challenges

- a. What are your biggest challenges to integration and longevity?
- b. Is your program active in the Summer?

#### Campus Visibility

- a. What practices brought you an increase in enrollment?



The GREEN Integration Scale is the first empirically derived framework to help school gardens evaluate their integration with the broader school curriculum and culture. I used this tool to analyze UNM's Lobo Garden and rank its integration level according to the only available academic framework.

## Appendix B

Purple = Student Role

Red = Administrator Role

Orange = Faculty Role

## RESEARCH

Resources & Support Domain	Score <sup>a</sup>
<p><b>Budget and Funding</b>—The monetary requirement and financial estimate necessary to support a gardening program</p> <ul style="list-style-type: none"> <li>□ Low—actively seeking more funding to meet current year’s needs</li> <li>□ Moderate—enough funds to meet yearly needs and raising for future growth</li> <li>□ High—in the black (money left over from previous years)</li> </ul>	<b>Low</b>
<p><b>Networks &amp; Partner Organizations</b>—The interconnectedness of a school with other supporting organizations or individuals in the field of school gardens</p> <ul style="list-style-type: none"> <li>□ Low—few outside connections (&lt;3)</li> <li>□ Moderate—some outside connections (3 to 4)</li> <li>□ High—many outside connections (or connections that meets all needs for logistics/students) (4+)</li> </ul>	<b>Moderate</b>
<p><b>Administrative Support</b>—Mental, practical, or other encouragement and help needed from key leaders within a school required for teachers, parents, or others to implement an ongoing gardening program</p> <ul style="list-style-type: none"> <li>□ Low—aware but uninvolved administrators (gave project approval but little or no active involvement)</li> <li>□ Moderate—some involvement (supportive of garden committee, interested in staying abreast of activities)</li> <li>□ High—valued and supported (actively promoting use of the garden to teachers, students and parents)</li> </ul>	<b>Low</b>
<p><b>Professional Development</b>—Guided learning and training provided to educators in order to improve their knowledge, skills, and comfort using school gardens as an educational tool</p> <ul style="list-style-type: none"> <li>□ Low—encouragement by administrators, garden committee, parents, or teachers to facilitate use of the garden (e.g. host meetings, sending emails, having “open garden days”)</li> <li>□ Moderate—some professional developments for interested teachers or parents</li> <li>□ High—offer professional development sessions or designated time for teachers, parents, or other to develop skills related to the physical garden or connecting it to academics</li> </ul>	<b>Low</b>
<p><b>Organizational Structure</b>—The decision making person(s) that determines how a school’s gardening program is implemented</p> <ul style="list-style-type: none"> <li>□ Low—limited participation in garden committee</li> <li>□ Moderate—regular meetings, some people only peripherally involved</li> <li>□ High—active committee of members and/or strong outside organization involvement that manages the garden, where tasks are delegated and accomplished</li> </ul>	<b>Low</b>
<b>TOTAL DOMAIN SCORE:</b>	<b>6</b>
Physical Garden Domain	Score
<p><b>Planning and establishing the physical space</b>—The deliberate action(s) taken to develop and implement a strategy to maximize the garden’s potential to meet the school’s goals and needs for the space</p> <ul style="list-style-type: none"> <li>□ Low—inexperienced gardeners with no plan</li> <li>□ Moderate—some experienced gardeners with general plan/goals</li> <li>□ High—experienced gardeners and well-developed plan, short and long term goals</li> </ul>	<b>Low</b>
<p><b>Garden care and upkeep</b> —The physical support provided to the garden to ensure that plants, animals, or habitats in the garden have the adequate care and resources necessary for growth</p> <ul style="list-style-type: none"> <li>□ Low—a few people maintain the garden</li> <li>□ Moderate—passionate group maintain the garden</li> <li>□ High—designated group maintain the garden</li> </ul>	<b>High</b>

**RESEARCH**

<p><b>Characteristics of the physical</b>—The attributes of a particular garden that facilitate or promote its use space</p> <ul style="list-style-type: none"> <li>□ Low—small space, limited participation</li> <li>□ Moderate—large enough to accommodate one class</li> <li>□ High—open space for more than one class with available seating</li> </ul>	<b>Low</b>
<p><b>Crop vitality and diversity</b>—The robustness and variance of plant species in a particular garden</p> <ul style="list-style-type: none"> <li>□ Low—limited vitality or diversity</li> <li>□ Moderate—some diversity, fairly vital</li> <li>□ High—diverse and vital plants</li> </ul>	<b>Moderate</b>
<p><b>Evaluation and feedback</b>—The acquisition of information relating to the effectiveness and/or efficacy of one or more aspects of a garden or gardening program</p> <ul style="list-style-type: none"> <li>□ Low—no evaluation but open to informal feedback</li> <li>□ Moderate—informally collect some data (e.g. weight of harvest)</li> <li>□ High—conducted/planning to conduct a formal evaluation</li> </ul>	<b>Moderate</b>
TOTAL DOMAIN SCORE:	
<b>9</b>	
<b>Student Experience Domain</b>	<b>Score</b>
<p><b>Connection with curriculum</b>—The relationship, relevance, and fit of the garden with state mandated learning objectives, aims, and goals for students in a particular grade or class</p> <ul style="list-style-type: none"> <li>□ Low—informally connected to courses (used as enrichment, optional class, or club)</li> <li>□ Moderate—formally connected to non-core subjects</li> <li>□ High—formally connected to one or more core subjects</li> </ul>	<b>Low</b>
<p><b>Time spent in the garden</b>—The duration and frequency of structured educational time that students spend in the garden</p> <ul style="list-style-type: none"> <li>□ Low—approximately 10 h/y (1 ×/mo spent in the garden)</li> <li>□ Moderate—10 to 30 h/y (1 to 3 ×/mo)</li> <li>□ High—approximately 1 ×/wk or more (&gt;30 h/y OR through growing season)</li> </ul>	<b>High</b>
<p><b>Activities</b>—Action taken by students in the garden</p> <ul style="list-style-type: none"> <li>□ Low—activities with little or no connections to learning objectives</li> <li>□ Moderate—activities in garden vs classroom with some connections to learning objectives</li> <li>□ High—hands-on gardening highly connected to academic study</li> </ul>	<b>Moderate</b>
<p><b>Engagement</b>—The cognitive, emotional, and behavioral involvement of students in the learning process and participation in tasks related to the garden</p> <ul style="list-style-type: none"> <li>□ Low—students do what is required</li> <li>□ Moderate—students express excitement during required activities</li> <li>□ High—students go beyond requirements (eg, are inquisitive) and/or express interested in continued participation in the garden</li> </ul>	<b>High</b>
<p><b>Tasting</b>—The specific activity of trying edible plants</p> <ul style="list-style-type: none"> <li>□ Low—students rarely try foods</li> <li>□ Moderate—students taste in the garden and lunchroom regularly (garden to café)</li> <li>□ High—students taste at almost or every visit</li> </ul>	<b>Low</b>
<i>(continued on next page)</i>	

**Figure 4.** (continued) The School Garden Integration Scale based on the results of interviews and concept mapping analysis with the 21 participating New York City schools.



<p><b>Learning opportunities</b>—Learning facilitated by the garden that is unrelated to mandated curriculum or learning standards</p> <ul style="list-style-type: none"> <li>□ Low—connections limited to core academics</li> <li>□ Moderate—additional topics taught</li> <li>□ High—additional topics taught, accompanied by hands-on activities</li> </ul>	<p><b>Low</b></p>
<p>TOTAL DOMAIN SCORE:</p>	<p><b>11</b></p>
<p><b>School Community Domain</b></p>	<p>Score</p>
<p><b>Volunteer and parent involvement</b>—Non-staff members of the school, neighborhood, or community become involved with the school’s gardening program</p> <ul style="list-style-type: none"> <li>□ Low—support but little involvement (parents are aware of the garden, may help fundraise, or participate in single events)</li> <li>□ Moderate—Parent-Teacher Association involved but on limited basis (parents are peripherally involved with garden in an ongoing process)</li> <li>□ High—Parent-Teacher Association and other parents/volunteers involvement is ongoing (parents are actively involved and provide support through the garden committee and/or in other vital ways)</li> </ul>	<p><b>Moderate</b></p>
<p><b>Social events</b>—Time allotted for recreational activities in or related to the garden</p> <ul style="list-style-type: none"> <li>□ Low—before, afterschool, elective period participation</li> <li>□ Moderate—classroom-wide, non-academic events limited to students</li> <li>□ High—school-wide, non-academic events involving families (eg, composting days on weekends, movie nights)</li> </ul>	<p><b>Moderate</b></p>
<p><b>Food environment</b>—The school’s culture and standards for foods allowed within the school, offered to and/or consumed by students</p> <ul style="list-style-type: none"> <li>□ Low—healthy habits promoted in garden only or for unique times (eg, healthy party guidelines)</li> <li>□ Moderate—healthy policies in classroom or lunchroom (eg, Wellness in the Schools, Garden to Café)</li> <li>□ High—schoolwide, healthy eating policies implemented in classroom and lunchroom</li> </ul>	<p><b>Low</b></p>
<p>TOTAL DOMAIN SCORE:</p>	<p><b>5</b></p>
<p>TOTAL OVERALL SCORE<sup>b</sup>:</p>	<p><b>25</b></p>
<p><sup>a</sup>Scoring: if a component is not present, a score of 0 is assigned. Low=1, moderate=2, high=3.  <sup>b</sup>Overall scores: low integration=0 to 19, moderate integration=19 to 38, high integration=38 to 57.</p>	



	Title/Students/Programs	Acreage	Year est; by who	Department Housed	Governance
UNM	UNIVERSITY OF NEW MEXICO Public R1 27,353 215		0.013	2011 - 12 years Student Campaign	Geography & Environmental Studies TA Coordinator Faculty Coordinator
1	Public R2 27,229 200		12	2011 - 12 years Student Campaign	Student Affairs Division Student Community Engagement Center 1 staff (full time) 1 student admin coordinator (full-time, 4 year) 6 students (10hrs/ wk) 2 interns (stipend) Volunteer Teams
2	Public Liberal Arts 8,668 26		0.5	1971 - 52 years Faculty	Environmental Studies & Planning Dept Adjunct Faculty 2 student interns (paid) Dean
3	Private Liberal Arts 2,526 50		1	2003 - 20 years Student Campaign	Sustainability Office 2 staff (full-time)
4	Public Land Grant R1 38,808 205		2	2001 - 22 years Faculty	Horticulture Faculty-run 30 student workers (work study, community service)
5	Public Land Grant R1 29217 250		1.7	2013 - 10 years Dean	Environmental & Plant Biology Faculty-run Volunteers via Office of Sustainability Paid Summer Interns Workstudy High school interns Non-Profit Collaboration
6	Public Liberal Arts and Sciences 2116 45		3	1995 - 28 years Faculty	Science & Operations Paid: 1 Farm Manager Farm Aides Unpaid: 10 - 30 internships students AmeriCorps
7	Public Land Grant - Ag School 72,982 398		7	1993 - 30 years Dean	Not affiliated with single department Faculty Run Garden Manager Vol Coordinator Agrilife Events group Unpaid Interns
8	Private 10,000 150		0.125	2006 - 16 years Student Campaign	Environmental Studies Adjunct Professor 1 student position

	Operating Budget	Funding Source	Academic Connection	Food Distribution	Summer	Groundskeeping
UNM	Unknown	Grant	Lobo Gardens	School Food Pantry	N	Y - Provide Oversight
1	12K	Student Activities & Leadership Department Student Fees	Food Security Senior Capstone Leadership for Sustainability Education (LSE) Sustainable Food Systems Certificate Garden Educator Professional Development	Food Bank	N	Y - Maintain Safety
2	15K	Instructionally Related Activity Fund	Agroecology Biology Psychology Multicultural Studies	School Food Pantry Local Food Bank	Y	N
3	7K	Private Donors Grants	10 classes/year: Body and Earth Geography Geology English Religion Art History Architecture Research Projects	Sell to Dining Hall Local Food Pantry	Y	N
4	12K	Plant Sales Grants Donations Campus Flower Shop	Plant I.D. Landscape Mgmt Special Topics	Sold	N	N
5	7K	Grants 6K Revenue	Sustainable Agriculture	Sell to University, Restaurants & local produce auction.	Y	N
6	50K	62K Revenue	AgroEcology/Sustainable Agriculture Psychology	Farm Stand Food Bank	Y	N
7	350K	Extension Station Vice Chancellor's Office Private Donors Department Fees	Crop Science Landscape Architecture & Construction Lab Plant Materials Lab Plant Pathology English Elementary Education Music Weavers and Spinners Entomology (bee lab) Floral Design Theater Meteorology Master Gardeners 4H	Plant Sales	Y	N - use 3rd party company
8	5K	Vice Chancellor's Office	Urban Agriculture Minor Community Engagement Anthropology	Campus Food Bank Seed Library	N	N

# APPENDIX C

	<b>Title/Students/Programs</b>	<b>Acreage</b>	<b>Year est; by who</b>	<b>Department Housed</b>	<b>Governance</b>
9	Public Land Grant R1 45000 350		7 2012 - 11 years Student Campaign	College of Natural Resources	1 staff (part-time) Student Working Groups Intern Coordinators Dean's Advisory Committee Indigenous Land Stewards
10	R1 29,500 243		0.25 2016 - 7 years Student Campaign	Botanical Garden	Paid Coordinator Student Leadership Team (1x/wk) Advisory Board Volunteers Work Study Class Interns (for credit)
11	Public Land Grant R1 20,000 500		4 2015 - 8 years Faculty	College of Agriculture	1 full time staff 3 part time students apprenticeships Operations Manager Dean of Ag. Advisory Board
12	Public Land Grant R1 49,500 600		10 2020 Student Campaign	Grounds Department	Culinary Services Ag and Life Sciences Student Orgs Paid Interns



# APPENDIX C

	Operating Budget	Funding Source	Academic Connection	Food Distribution	Summer	Groundskeeping
9	10K	Private Donors	Student groups Food Systems Minor Farm is research-based	Campus Food Bank	Y	Y - Provide Oversight
10	13K	Extension Station Vice Chancellor's Office Private Donors Department Fees	3 classes/semester Chemistry Service Learning orgs Food and Agriculture	Students Forage	Y	N - Botanical Garden provides expertise
11	38K	Department Fees	16 for-credit internships 2 classes/semester 2 Americorps 10 work-trade Garden Club Special Events	Sell Food	Y	N
12	15K	Grants	Ag and Life Sciences depts. High school groups	Sell to Dining Hall	Y	Y - collab on perennial areas

# WORKS CITED

- "Administrative Policies and Procedures Manual - Policy 2100: Sustainability." *Policy 2100: Sustainability:: University Policy | The University of New Mexico*, 22 June 2017, [policy.unm.edu/university-policies/2000/2100.html](http://policy.unm.edu/university-policies/2000/2100.html).
- Bice, M. (2018). Community Gardens: Interactions between Communities, Schools, and Impact on Students. *The Health Educator*, 50(1).
- Boyd, D. (2021, December 18). *Lobo Gardens*. YouTube. <https://www.youtube.com/watch?v=SXwTp0JlRE>
- Burns, Heather. "Leadership for Sustainability: Theoretical Foundations and Pedagogical Practices that Foster Change ." *International Journal of Leadership Studies*, vol. 9, no. 1, 2015, [https://doi.org/https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1044&context=elp\\_fac](https://doi.org/https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1044&context=elp_fac).
- Burt, K. G., Koch, P., & Contento, I. (2017). Development of the green (garden resources, education, and Environment Nexus) tool: An evidence-based model for School Garden Integration. *Journal of the Academy of Nutrition and Dietetics*, 117(10). <https://doi.org/10.1016/j.jand.2017.02.008>
- Block K, Gibbs L, Staiger PK, et al. Growing Community: The Impact of the Stephanie Alexander Kitchen Garden Program on the Social and Learning Environment in Primary Schools. *Health Education & Behavior*. 2012;39(4):419-432. doi:[10.1177/1090198111422937](https://doi.org/10.1177/1090198111422937)
- Cargas, S. (2020). *Basic needs insecurity at UNM 2020 Research Report*. University of New Mexico. Retrieved December 2, 2022, from <https://basicneeds.unm.edu/basic-needs-at-unm-2020-research-report.pdf>
- Calamidas, Elizabeth G, et al. "Atlanticare Healthy School Edible Garden startup grants: A content analysis of post-grant follow-up reports." *Health Education Journal*, vol. 79, no. 6, 2020, pp. 671-685, <https://doi.org/10.1177/0017896920905622>.
- Davis, J. (2015). Retraction statement: La sprouts randomized controlled nutrition, cooking and gardening program reduces obesity and metabolic risk in Latino youth. *Obesity*, 23(12), 2522-2522. <https://doi.org/10.1002/oby.21390>
- Duram, Leslie A., and Sydney K. Klein. "University Food Gardens: A Unifying Place for Higher Education Sustainability." *International Journal of Innovation and Sustainable Development*, vol. 9, no. 3/4, Interscience Publishers, 2015, p. 282. <https://doi.org/10.1504/ijisd.2015.071853>.
- Farm to school / New Mexico grown*. New Mexico Public Education Department. (2023, February 28). <https://webnew.ped.state.nm.us/bureaus/student-success-wellness/nutrition/farm-to-school/#:~:text=The%20purpose%20of%20the%20New,the%20state%20for%20school%20meals>.
- Hazzard, Eric L., et al. "Best Practices Models for Implementing, Sustaining, and Using Instructional School Gardens in California." *Journal of Nutrition Education and Behavior*, vol. 43, no. 5, Elsevier BV, Sept. 2011, pp. 409-13. <https://doi.org/10.1016/j.jneb.2011.05.005>.
- Joshi, Anupama, et al. "Do farm-to-school programs make a difference? findings and future research needs." *Journal of Hunger & Environmental Nutrition*, vol. 3, no. 2-3, 2008, pp. 229-246, <https://doi.org/10.1080/19320240802244025>.
- Kim, S.-O., & Park, S.-A. (2020, February 15). *Garden-based integrated intervention for improving children's eating behavior for vegetables*. International journal of environmental research and public health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7068610/>
- Marley, Sarah A., et al. "Real-life research projects improve student engagement and provide reliable data for academics." *Ecology and Evolution*, vol. 12, no. 12, 2022, <https://doi.org/10.1002/ece3.9593>.
- Merrigan, K. A. & Bailey, M. (2008). The Potential of Farm-to-College Programs. *Nutrition Today*, 43 (4), 160-165. doi: 10.1097/01.NT.0000303339.75605.9e.
- Milstein, Tema, et al. "'got to get ourselves back to the garden': Sustainability Transformations and the power of Positive Environmental Communication." *Journal of Environmental Planning and Management*, 2023, pp. 1-19, <https://doi.org/10.1080/09640568.2023.2197140>.
- Monferrer, Lidón, et al. "Mathematical and experimental science education from the School Garden: A Review of the literature and recommendations for Practice." *Education Sciences*, vol. 12, no. 1, 2022, p. 47, <https://doi.org/10.3390/educsci12010047>.
- Nazmi, Aydin, et al. "A systematic review of food insecurity among US students in Higher Education." *Journal of Hunger & Environmental Nutrition*, vol. 14, no. 5, 2018, pp. 725-740, <https://doi.org/10.1080/19320248.2018.1484316>.

## WORKS CITED

- Ohly, Heather, et al. "A systematic review of the health and well-being impacts of school gardening: Synthesis of quantitative and qualitative evidence." *BMC Public Health*, vol. 16, no. 1, 2016, <https://doi.org/10.1186/s12889-016-2941-0>.
- Ozer, Emily J. "The effects of School Gardens on students and schools: Conceptualization and considerations for Maximizing Healthy Development." *Health Education & Behavior*, vol. 34, no. 6, 2006, pp. 846–863, <https://doi.org/10.1177/1090198106289002>.
- Savoie-Roskos, Mateja R., et al. "Increasing fruit and vegetable intake among children and youth through gardening-based interventions: A systematic review." *Journal of the Academy of Nutrition and Dietetics*, vol. 117, no. 2, 2017, pp. 240–250, <https://doi.org/10.1016/j.jand.2016.10.014>.
- Senate 1 Interagency Outdoor Classroom Task Force, *Recommendations for Outdoor Learning in New Mexico 1–21* (2021). Santa Fe, NM.
- Sherry, C. (2022). Learning from the dirt: Initiating university food gardens as a cross-disciplinary tertiary teaching tool. *Journal of Outdoor and Environmental Education*, 25(2), 199–217. <https://doi.org/10.1007/s42322-022-00100-6>
- Skinner, Ellen A., et al. "Intrinsic motivation and engagement as 'active ingredients' in garden-based education: Examining models and measures derived from self-determination theory." *The Journal of Environmental Education*, vol. 43, no. 1, 2012, pp. 16–36, <https://doi.org/10.1080/00958964.2011.596856>.
- Turner, Lindsey, et al. "Increasing prevalence of us elementary school gardens, but disparities reduce opportunities for disadvantaged students." *Journal of School Health*, vol. 86, no. 12, 2016, pp. 906–912, <https://doi.org/10.1111/josh.12460>.
- Williams, Dilafuz R., and P. Scott Dixon. "Impact of garden-based learning on academic outcomes in schools." *Review of Educational Research*, vol. 83, no. 2, 2013, pp. 211–235, <https://doi.org/10.3102/0034654313475824>.
- Riley, Hunter. "Students Ask for Sustainable Garden." *The Daily Lobo*, 8 Feb. 2010, [www.dailylobo.com/article/2010/02/students\\_ask\\_for\\_sustainable\\_garden](http://www.dailylobo.com/article/2010/02/students_ask_for_sustainable_garden).
- Robinson-O'Brien, Ramona, et al. "Impact of garden-based Youth Nutrition Intervention Programs: A Review." *Journal of the American Dietetic Association*, vol. 109, no. 2, 2009, pp. 273–280, <https://doi.org/10.1016/j.jada.2008.10.051>.
- Ullevig, Sarah L., et al. "Establishing a campus garden and food pantry to address food insecurity: Lessons learned." *Journal of American College Health*, vol. 69, no. 6, 2020, pp. 684–688, <https://doi.org/10.1080/07448481.2019.1705830>.
- Waldron, John W.F., et al. "Building an outdoor classroom for field geology: The Geoscience Garden." *Journal of Geoscience Education*, vol. 64, no. 3, 2016, pp. 215–230, <https://doi.org/10.5408/15-133.1>.
- (2020). (rep.). Student Sustainability Center, *Strategic Plan 2020 - 2023* (pp. 1–16). Portland, OR.