Feasibility Study

Prepared by UNM students and faculty
Fall 2012
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New Mexico’s Flagship Farm

INTRODUCTION

Definitions:
A *flagship* is the commanding ship of an armada, the leader’s vessel. A *farm* is an ecosystem for capturing energy and converting simple molecules into complex foodstuffs while ensuring social stability and inter-generational continuity of humans, livestock, crops, and other diverse species; husbandry of stakeholders both on and off the farm is paramount.

The Pattern:
The pattern of a *flagship farm* leads others by providing a vision for agriculture and community well-being that serves present needs while creating a legacy to benefit future generations for nourishment of body, mind, heart, and spirit.

Powerful trends of population growth, climate change, diasporas, wealth disparity, and the corporatization of the dominant food system have completely changed the agricultural landscape. Average citizens have limited say in matters that directly affect their health and little access to food that is free of toxins. Food that was a birthright mere generations ago is no longer available.

In *The Great Work*, Thomas Berry (1999) points a finger at universities for producing college graduates whose enterprises damage the environment. He envisions a new role for higher education, to “reinvent the human” as a participant in creating a sustainable world that balances economic, environmental, and social needs. Through the American College & University Presidents’ Climate Commitment (ACUPCC), institutions of higher education are meeting Berry’s challenge. New Mexico’s flagship institution, the University of New Mexico, is re-engineering its campuses to be carbon neutral and threading sustainability throughout the curriculum.

People cannot learn to be participants in the ongoing creation of a sustainable world without opportunities to affect how and why food is produced.
INTRODUCTION

We discovered that farms are one component of the value chain, and generally defy stereotyping:

1) A farmer is like a snowflake – each is unique and we should not make assumptions about their goals, motivations, values, or expected outcomes.

2) Farms develop over 2-15 years, from small and simple to large and complex.

3) Small 2-30 acre farms can be profitable and provide living wages and benefits to workers.

4) Farms are finite in capability; at some point, they must reach out and connect to others for goods and services near or far. Economies of scale are available by entering into formal or informal arrangements.

5) Stable, long-term farms have a diversity of products. In the book Making Your Small Farm Profitable, R. Macher (1999) emphasizes the following:
   a. Thorough planning for 1, 5, and 10 years
   b. Attention to all expenses and labor costs
   c. Soil health through crop rotation and integration of plants and livestock
   d. Organic, sustainable farming
   e. Diversity of crops and enterprises within the farm
   f. Debt elimination
   g. Access to retail sales
   h. Added value (e.g., making jelly from berries or grinding corn into meal)

Analysis:

In 2009, The University of New Mexico created a plan to reduce its carbon footprint. The Climate Action Plan (Appendix B) calls for a campus farm as one star in the constellation of carbon reduction enterprises. Through a USDA-sponsored project of the UNM Collaborative for Foodshed Development (2011-12), tours of 52 farms, ranches, food cooperatives, community food systems and related enterprises revealed the following:

- A strong and growing demand for local, nutritious, affordable, organic food (Dimitri and Greene 2002, Batte et al. 2007)
- Pressing needs for infrastructure to store, process, and distribute food
- The necessity for educating a new generation of suppliers, producers, providers, brokers, distributors, community organizers, and marketers to understand themselves as links in the value chain that constitute the localized food system.
Like a farm, universities are not islands, but they rely on its community and municipal partners in order to provide education to meet society's current and future needs. A farm is embedded in an ecosystem with inputs and outputs (figure 1) that connect it to other nodes. This vast network of goods, services, and markets known as the value chain (Kaplinsky and Morris ND) understand their role in the Dream of the Earth (Berry 1988) by planting, cultivating, and eating food by their own hand.

Therefore:

Create a university flagship farm that connects diverse disciplines, promotes sustainability, and trains the next generation of foodshed leaders.


Abiding Principles

Definitions:
The word abiding means to continue to be sure and firm, to conform, and to comply with. Principles are the collectivity of moral ethical standards or judgments. Our abiding principles are overarching values and intentions that will serve as conceptual framework for the flagship farm over time.

The Pattern:
The pattern of abiding principles is a set of moral and ethical guidelines that will lead us to create a farm that follows the collective standards of the students, community, and stakeholders.

The UC Davis student-run farm has developed a set of values that focus on sustainable agriculture principles and practices. These include an emphasis on field-based, experiential learning as well as the encouragement of student initiative, creativity and exploration. Programs including internships, formal courses, research, and community outreach express these values, contributing to the success of the UC Davis student run farm since its origin in 1977. We believe that if we base our Flagship Farm on a strong set of values and abiding principles, we will be as successful as other student farms that have thrived for years. Although the activities, components, and operations of a farm will evolve and change over time, these principles will enable stakeholders to make decisions, form fruitful partnerships and adapt to change.

The characteristics of a Flagship Farm are undefined.
Analysis:

Business organizations and other entities often use the “Three P’s” (people, place, and planet) as a way to address issues related to equity, the environment, and economics. This consideration helps to make sound, sustainable decisions. The farm will embody two additional concepts—participation and performance—in order to ensure that the farm will be productive and inclusive of many people and groups.

Understanding the farm as a synthesis of the five P’s of sustainability: people, planet, profit, performance, and participation facilitates a rich and holistic dialogue amongst stakeholders for the conceptualization, design, construction, operation, and maintenance of the farm. The 5 P’s provide a critical conceptual framework for stakeholders to develop long and short-term goals. These goals ultimately facilitate the design of the farm. (see Assessment & Criteria section).

The Three P’s of Sustainability

Proposed Five P’s of Sustainability
Therefore:
Establish Abiding Principles for the Flagship Farm, and ensure their ongoing implementation.

Our team has, after a good deal of examination and synthesis, identified five basic principles for the farm:

1) Campus/Community Connected
2) Sustainable
3) Productive
4) Transparent
5) Multi-Disciplinary
New Mexico’s Flagship Farm

**Definitions:**
A precedent is “an earlier event or action that is regarded as an example or guide to be considered in subsequent similar circumstances...” an event “preceding in time, order, or importance” (Oxford Dictionaries online).

The Pattern:
Every farm is unique; there is not one ideal model for UNM’s Flagship Farm. However, as with any innovative project, it is good practice to gather information from past endeavors, both successful and unsuccessful. This activity will allow us to foresee potential opportunities and avoid mistakes made by others. A campus flagship farm includes some of the best elements of different farm typologies; we can learn from other campus farms as well as community-based agricultural enterprises.

“Those who can not remember the past are condemned to repeat it.”
-George Santayana
Analysis:

We looked for precedents that include elements of our abiding principles. Examples of successes and failures from other farms will allow us to foresee potential opportunities and avoid possible setbacks. These precedents will serve as a guide in developing the model and function of the flagship farm.

To identify various cases that could serve as precedent for our farm, the class divided into groups to research urban farms, student-run campus farms and community-based CSA farms. This investigation resulted in the following list of farms:

- Backdoor Harvest. Saint Louis, Missouri (community-based farm)
- Berea College Farm. Berea, Kentucky (organic campus farm)
- Center for Agroecology & Sustainable Food Systems. UC Santa Cruz, California (campus farm)
- Common Grounds. Stony Kill, New York (urban farm)
- Green Youth Farm. Chicago, Illinois (CSA)
- Grow DAT Youth Farm. New Orleans, Louisiana (CSA)
- East Mountain Organics. Albuquerque, New Mexico (organic urban farm)
- Meadowlark Farm. Warwick, New York (urban farm)
- OASIS Farm NMSU. Las Cruces, New Mexico (campus farm)
- Rio Grande Community Farm. Albuquerque, New Mexico (community farm)
- Skarsgard Farms. Albuquerque, New Mexico (CSA & organic farm)
- Sustainable Student Farm. University of Illinois, Illinois (campus farm)
- Syracuse Greens. Syracuse, New York (community-based farm)
- TAMU Howdy Farm. A&M University, Texas (campus farm)
- The Food Project. Lincoln, Massachusetts (CSA)
- Urban Farm. Memphis, Tennessee (urban farm)
- Vestal Urban Farm. Little Rock, Arkansas (urban farm)
As many of these programs contain significant similarities, four were selected to serve as case studies: one urban community farm (Urban Farms of Memphis, Tennessee), one community supported agriculture (Skarsgard Farms of Albuquerque, New Mexico) and two campus farms (Texas A&M University’s Howdy Farm and NMSU’s Oasis Farm). These farms share our goals, and, with the exception of Urban Farms, are located in our region.

Even though it was very successful, the NMSU Oasis farm was closed after 4 years. The program was terminated because the farm was situated in an area that was designated for campus expansion. By appropriately siting the Flagship Farm, we can hopefully avoid this type of outcome. The other three selected precedents support financial and environmental sustainability by using greenhouses to significantly lengthen their growing season, practicing organic growing techniques, and running CSA programs for continuous income. The Flagship Farm could use CSA, private funding, school funding and federal funding to keep it profitable, while remaining environmentally friendly.

<table>
<thead>
<tr>
<th>Name</th>
<th>Urban Farms</th>
<th>Skarsgard Farms</th>
<th>TAMU Howdy Farm</th>
<th>NMSU Oasis Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Urban community based farm</td>
<td>CSA for profit, Campus Farm</td>
<td>CSA for profit, Campus Farm</td>
<td>CSA for profit, Campus Farm</td>
</tr>
<tr>
<td><strong>Contact Information</strong></td>
<td>901.252.9227</td>
<td>505.681.4060</td>
<td>214.706.1163</td>
<td>505.664.0271</td>
</tr>
<tr>
<td><strong>Mission Statement</strong></td>
<td>Seeks to sustainably provide their community with healthy, local, and natural food that is accessible while providing new employment opportunities.</td>
<td>Seeks to provide organic, sustainable products. It also helps local and rural farmers to distribute their products.</td>
<td>Seeks to promote local food, land, and our community through a multi-disciplinary experience, education, and community participation.</td>
<td>Seeks to provide and maintain a multi-disciplinary experiential education opportunity and a diverse and inclusive facility (CSA, greenhouses, etc.) and demonstrate CSA model for their community.</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>Founded in 1970, located in a residential area. Also works with local producers, grows and distributes their goods, and allows them to start their own lifestyle business.</td>
<td>Founded in 2000 and relocated in 2012. Provides organic products. This enables people to have the experience to start their own business.</td>
<td>Founded in 2000. It is a student-led initiative that practices environmentally friendly policies. It serves as a pilot for-profit educational educational venture.</td>
<td>Founded in 2006. It functioned as a CSA and is now closed. Incorporating students into planning, growing, harvesting and distributing produce from 2002 to 2006.</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>3 Acres</td>
<td>55 Acres</td>
<td>3 Acres</td>
<td>3 Acres</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>Annual gross of $25,000</td>
<td>$15,000, Gross Income for year</td>
<td>Year-round</td>
<td>Year-round</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>Employees, Interns &amp; Volunteers</td>
<td>Students, Interns &amp; Volunteers</td>
<td>Intern, employees &amp; Volunteers</td>
<td>Interns, employees &amp; Volunteers</td>
</tr>
<tr>
<td><strong>Seed Source/Innovations</strong></td>
<td>Harvest Box Program</td>
<td>About 350 students per semester</td>
<td>Shares harvested with CSA members</td>
<td>Course-based.</td>
</tr>
<tr>
<td><strong>Infrastructure/Assets</strong></td>
<td>Greenhouses, barns, market</td>
<td>Greenhouses, machinery, store</td>
<td>Greenhouses, machinery, store</td>
<td>Greenhouses, machinery, store</td>
</tr>
<tr>
<td><strong>Output/Products</strong></td>
<td>Produce, Turkey, Fish, Grains</td>
<td>Produce, Turkey, Fish, Grains</td>
<td>Produce, Turkey, Fish, Grains</td>
<td>Produce, Turkey, Fish, Grains</td>
</tr>
<tr>
<td><strong>Granite Funding</strong></td>
<td>CSA funding</td>
<td>Private funding</td>
<td>CSA funding</td>
<td>Private and Federal funding</td>
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Skarvard Farms-Greenhouse for seedlings and cuttings
This SWOT analysis illustrates the strengths, weaknesses, opportunities and threats of the case studies, identifying factors to incorporate or avoid in our farm. This activity reveals the desire for organic produce, a CSA program, and an effective media campaign. We have also identified some of the requirements particular to our own farm, such as educational benefits, strong student involvement, and a thoughtfully selected site or sites.

Therefore:

Create a farm that encompasses the successes of our precedents and other sustainable, student-run campus farms.

Precedents are strong indicators of the opportunities and constraints we must address. By using methods, findings and conclusions from case studies, we identify the best practices to employ, avoid costly mistakes, and make use of existing research and innovations.
SITE ANALYSIS

THE UNIVERSITY OF NEW MEXICO
New Mexico's Flagship Farm

Siting the Flagship Farm

Definitions:
The site is a physical location within a context of surrounding stakeholders where the farm will exist. The site analysis is an evaluation of data collected about each potential site and the resulting positive and negative relationships in order to determine its suitability for a campus farm.

The Pattern:
Site location in relation to UNM main campus, neighborhoods, and businesses shapes the overall pattern of the farm. The UNM Climate Action Plan to reduce carbon emissions recommends acting “to promote a community which closes loops and encourages cooperative green businesses” (“UNM Climate”). The placement of the farm has the potential to promote a green economy of mutually beneficial relationships between the university, students and local businesses. Locating the farm in a visible and easily accessed site generates awareness and participation of the faculty, staff and students and encourages agricultural education in the surrounding community. We have found that each potential site has challenges to overcome. The following is a list of considerations:

1) people with vested interests in what happens on that site
2) proximity campus
3) vehicular and pedestrian access points to the land
4) available resources
5) space for greenhouses and other structures

No site is perfect.
Potential Sites for the UNM Flagship Farm

Inset map of Main UNM campus farm sites

1- North Campus Golf Course
2- North Campus
3- South Campus/ Lobo Village
4- South Campus/Gibson
5- Meta Del Sol
6- Smaller plots throughout campus
7- UNM West Campus
8- Championship Golf Course
9- Gonzales Field/ Corrales
10- Skarsgard Farms

Map by: Elise Monroy
2017
Analysis:

Our team met with Suzanne Mortier, UNM Landscape Architect, and Claudia ‘Taudy’ Miller, UNM Campus Planner, at UNM Planning & Campus Development to determine land availability in and around campus. We focused on sites designated for green space on the UNM Consolidated Master Plan (“UNM Consolidated”). As time progressed, more possibilities became evident. The following is a list of sites discussed in this meeting:

1) UNM North Campus Golf Course
2) UNM North Campus
3) South Campus adjacent to Lobo Village
4) South Campus at I25 and Gibson
5) Mesa del Sol
6) Smaller plots throughout Campus
7) UNM West
8) Championship Golf Course
9) Gonzales Field, Corrales
10) Skarsgard Farm

In order to assign a more specific scope to the feasibility study, the class selected five of the sites for closer examination. We wanted a sample of information, so we chose three types: on campus, farmland and a working farm. Five of the above sites were chosen for a closer look:

1) North Campus Golf Course and North Campus
2) South Campus adjacent to Lobo Village
3) South Campus at I25 and Gibson
4) Gonzales Field, Corrales
5) Skarsgard Farm

Left: Claudia Miller, Middle: Noreen Richards, Right: Emma Manning
North Campus Golf Course

Opportunities/Challenges: This is the most centrally located site for students. Neighborhood associations are fully supportive. AMAFCA is interested in a campus farm and may help with funding. There is already momentum for green space.

Location: 35°06'00.08"N 106°37'26.81"W
Elevation 5122ft
North Golf Course on North Campus with Indian School bordering it to the north. Approximately 0.2 miles west of the intersection of Indian School and University Blvd

Ownership: Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) and the University of New Mexico (UNM) www.amafca.org

Zoning: R-3: houses, townhomes, and high density apartments

Lot Size: Approximately 4-5 acres

Adjacencies:
To the South: Unplatted UNM North Golf Course land
To the North: Indian School Road (slightly elevated)
To the East: Residential neighborhood
To the West: Atia Vista Del Rio Senior Living Complex (1620 Indian School Rd NE), Citadel Apartment Complex (1520 University Blvd NE)
Nearby to the Southeast: Ronald McDonald House
Pete and Nancy Domenici Hall
Casa Esperanza
Historic Meem Pavilion

Access: This site is in the North Campus area. It can be accessed through the easement road coming from the south. There is a UNM shuttle stop to the south. It may be possible to connect to streets to the west of the arroyo by building a bridge.

Approx. travel time from UNM Student Union Building to the site: Bike 4-8 minutes Walk 19-24 minutes

Parking: There is parking for the nearby campus buildings, but it is limited.

Water: Currently the golf course land directly east is irrigated with water from the city. The site is directly east of the R-North Division Channel of the Albuquerque Arroyo system. There is underground water running east to west in the middle of the site.

Power: Currently no power

Tools: There are no tools on the site.

Greenhouses: More research is necessary to determine if it is possible to erect greenhouses on this site. There is a zoning question, so the neighborhood association to the east may need to be consulted.

Topography: Slight bowl shape, ideal for protection against north winter winds.

Concurrent/Future Use: The north parcel closest to Indian School is vacant without plans for use by the university, but is under the control of the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). Any development would have to be approved by AMAFCA and UNM. The surrounding neighborhood associations have strongly suggested that the space be preserved as green space used as an area for teaching and learning. The south parcel is currently open space, but there are plans for development by existing neighbors.
South Campus adjacent to Lobo Village

Opportunities/Challenges: Nearby student housing is convenient for student farmers, and there is precedent for community gardens near dense housing. Concurrently, coordination with Lobo Village may cause challenges.

Location: 35°06'05"N 106°64'69.49"W
Elevation 5052 ft
East of Lobo Village

Ownership: The University of New Mexico (UNM)

Zoning: SU-1 (Special Use 1): mixed-use

Lot Size: 4-5 acres

Adjacencies:
- To the South: Burger King, other commercial and residential; empty lots
- To the North: sporting venues and student housing; Avenida Cesar Chavez and UNM Campus
- To the East: hotels and sporting venues
- To the West: I-25, residential/community center

Access: Avenida Cesar Chavez and Lobo Village

Parking: Lot is adjacent to Lobo Village and The Pit parking lots. UNM South Lot parking is also nearby.

Topography: Slopes down East to West, and North to South. This is a storm water management site. There is a diversion channel (South Diversion Channel) where two arroyo channels meet. Additionally, there is a depression on the south end.

Current/Future Use: This vacant lot is used as informal footpaths, which would need to be accommodated if the farm were sited here.

South Campus at I-25 and Gibson

Opportunities/Challenges: Great visibility; existing pedestrian and bike trails provide opportunities for the public to casually experience the farm. However, Gibson becomes a barrier to the South.

Location: 35°03'36.48"N 106°38'13.41"W
Elevation 5034 ft
Corner of Gibson Blvd. SE and Interstate 25

Ownership: Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)

Zoning: Diversion (easement) and R-3 on the south end

Lot Size: 3-4 acres

Adjacencies:
- To the South: Burger King, other commercial and residential; as well as empty lots and fields, and running/walking paths
- To the North: sporting venues and student housing; Avenida Cesar Chavez and CNM Campus; Lobo Village
- To the East: New Fire Station, hotels, and sporting venues
- To the West: I-25, residential/community center

Access: Gibson Blvd; An open space network that includes urban streetscapes, plazas, and trails is currently being planned for the Gibson site. Approximately 2 miles from UNM SUB.

Parking: Lots are adjacent to Lobo Village and The Pit parking lots. South lot is also nearby.

Topography: Additionally, there is a depression on the south end.

Current/Future Use: Storm water management. There is a diversion channel (South Diversion Channel) where two arroyo channels meet.
SITE ANALYSIS

THE UNIVERSITY OF NEW MEXICO
New Mexico's Flagship Farm

Gonzales Field, Corrales

Opportunities/Challenges: It is already designated as farmland, making setup easy and neighborhood cooperative. The far distance from campus is a serious negative for student participation.

Location: 35°13'28.15"N 106°37'08.71"W
Elevation 5017 ft
Village of Corrales on the West side of Corrales Rd, across from the City center offices and senior center.
Approximately 2.4 miles from the intersection of Corrales Rd and Alameda Blvd

Ownership: Village of Corrales, managed by the Farmland Preservation Committee

Zoning: Agricultural, Protected by a conservation easement (can be used for no other purpose than farming)

Lot size: Approximately 6 acres. There is also a vacant commercial property in front bordering Corrales Rd that is privately owned, but if purchased a processing facility could be built there (through a UNM/Village partnership)

Topography: Flat

Power: currently no power

Adjacencies: To the South: Village of Corrales library, a park, Wells Fargo Bank Branch
To the North: Two houses and an apple orchard
To the East: Corrales Road. Across street is the Village of Corrales offices, Senior center, Fire station, houses
To the West: more farmland and an irrigation ditch
Nearby: Community Center (south), Corrales Elementary School (north)
Many business along Corrales Rd and two early child education centers.

Access: The only access into the village is by car (there is no bus service that comes into Corrales but there is a transit center near the Cottonwood Mall (approximately 3-4 miles away). The Flagship Farm program would have to provide a shuttle to the site or students would have to carpool. This site is 13 miles (approx. 27 minutes) from UNMs main campus. It is 11.31 miles from UNM West (approximately 23 minutes). (Travel times from map quest)

Parking: There is an empty lot west of site that might be able to be used for parking (permissions needed). Parking could be made available along the entrance road or possible across the street or in adjacent parking lots like the library (permission also needed)

Water: The land is irrigated with water from the irrigation ditch. This means that water is only available during the season when water flows through the ditch. Since the land has been farmed for over 200 years we may be able to get an exemption allowing 365 day/yr access. This would mean that extra water during the growing season could be pumped into a well for use during the winter seasons. The Middle Rio Grande Conservation District manages this water and presides over its allocation.

Tools: Only hand tools, although there was some talk about raising money to purchase a tractor (during a FPC meeting that Erinn attended). Storage for tools/tractor may be an issue since buildings cannot be built on the site (possibly across the street at the Village of Corrales office building/fire dept).

Greenhouses: According to the FPC the conservation easement allows greenhouses.

Current and future use: This parcel is farmed by a grant that supports the local YCC (Youth Conservation Corp). The grant funds a program during the growing season, but when money runs out the farming ceases. A UNM presence could allow this parcel to be funded and farmed all year round.
Skarsgard Farms

Opportunities/Challenges: Skarsgard’s mission aligns with ours: transparency, sustainability, productivity, and education. Skarsgard is actively pursuing farm education at their site, and the owner is favorable to collaborating with UNM. The farm part is already running, and we could focus on coordinating UNM departments for education. The distance from campus is a negative for student participation.

Location:

34°57'15.10" N 106°41'52.21" W
Elevation 491 ft
7525 Rays Court SW, Albuquerque 87105
West side of Isleta Blvd. just north of Jerry’s Market
Approximately 12 miles south of the UNM campus

Ownership: Monty Skarsgard (owner of Skarsgard Farms and CSA)

Zoning: Agricultural but there is one building that could accommodate amenities.

Lot size: There is 1-2 acres that could be made available to the Flagship Farm. The size could be increases over time if more space was needed. Monty currently farms over 23 acres at this location.

Adjacencies: Los Padillias/Pajarito Neighborhood

Access:

Driving: 17 miles, 21 minutes
Bus: Isleta bus stops approximately .27 miles north of the farm
Biking: not practical because of time

Parking: Plenty of parking in the existing farm's parking lot

Water: Existing well and drip hose irrigation is employed throughout the farm

Power: Yes

Tools: Monty Skarsgard has plenty of tools available for use by the Flagship Farm. Tractors would only be used by Skarsgard employees because of the liability, but Skarsgard is willing to assist UNM students. UNM would have to purchase greenhouses. There is a barn for storage with a port-a-potty. Skarsgard is open to UNM updating the building for bathrooms and classrooms. Plans at this location are the most flexible.

Topography: Flat

Current/Future Use: Currently being farmed. The space that Skarsgard is offering us is open.
Therefore:
The common interests among people with a relationship to the site, as well as the attributes needed for a successful flagship farm, should drive our site selection.

Available land is limited on and near UNM’s main campus. Most existing open spaces already have proposed development, some with plans from multiple agencies. There will be competition with other groups for use of the site. Perhaps by phasing the farm, we could begin off campus while we’re negotiating for on campus location. By demonstrating success elsewhere, our position will be stronger. We can increase our ability to overcome upcoming roadblocks by collaborating with other organizations.
Stakeholders

Definitions:
A _stakeholder_ is a person with an interest or concern in something, especially a business. This term can be used to denote a type of organization or system in which all the members or participants are seen as having an interest in its success.

The Pattern:
We will consider community input in the design and function of the Flagship Farm. Stakeholder opinions are important because they are valuable contributors, consumers and supporters of the Flagship Farm. Stakeholders are a crucial component of the University community, which is greatly affected by the outcome of innovative projects, such as a campus farm.

_Sustainability and transparency stand as core values of the University of New Mexico, yet few physical expressions of these values currently exist._

The University serves as a center of community for a diverse population containing stakeholders that are affected by the decisions and innovations of the University.
On September 27, 2012, we held an informal stakeholders meeting in order to initiate a dialogue with community members and UNM administrators. Attendees:

- Maggie Seeley
- Michel Wingard
- Terry Hooper
- Erin Contreras
- Jake Wellman
- Noreen Richards
- Grace Vicuna
- Victoria Padilla-Lima
- Hannah Robinson
- Julie Maynard
- Jayne Franck
- Teresa Lopez
- Mary Clark (PPD)
- Chris Gibula
- Ruben Contreras
- Viv Herschberger
- Brian Venero Civil Engineer (UNM)

The main ideas proposed in the following categories during the Open Space activity (see Appendix C) are as follows:

- Use the Flagship Farm as physical representation of the University’s values as a medium, component and advocate for a diverse multi-faceted community.

Analysis:

- Use the Flagship Farm as physical representation of the University’s values as a medium, component and advocate for a diverse multi-faceted community.
Programming: Functions

Definitions:
Programming: The act of formulating a plan for a definite source of action.
Functions: An activity or purpose intended for a person or thing.

The Pattern: The pattern of programming-functions is a collection of goals that will result in outcomes that reflect the values of the UNM Flagship Farm community.

A Flagship Farm is vehicle to launch students into professional careers that support development of the local food system. The system will ultimately be sustainable, democratic, transparent in its practices, carbon-neutral, and socially equitable to ensure access to healthy food throughout society. As such, a highly interdisciplinary university-level curriculum uses the farm as laboratory and as a portal to the economic, environmental, and social aspects of the local food system, its communities, and ecosystems. The flagship farm is a destination and magnet to attract students, scholars, and entrepreneurs alike who seek collaboration with innovative practitioners, teachers, and researchers. Farm functions give students experience with operations, management, risks, problem solving, and the joy of success.

The systems and operations of a flagship farm are complex, and thus challenge us to meet all of the abiding principles.

To be successful, a flagship farm must incorporate all abiding principles, including sustainability, transparency, holism, social responsibility, policy reform, diversity, and interdependence.
What are the abiding principles we need to meet?

As a flagship farm, we are attempting to satisfy extremely broad needs. The program itself has many variables to combine into a successful system, and although we may not accomplish all we would like on one site, it is necessary to prioritize. What types of operations and components should the Farm embody, and how should they be phased over time? This accompanying diagram summarizes skills and resources necessary for the various functions of a flagship farm.

“Goals vary. There are short-term, intermediate, and long-term goals. There are personal goals, family goals, business goals, and farm goals. A family goal might be to develop a system of farming that allows you to spend more time with your children. A personal goal might be to have enough farm income to quit your town job and farm full time. A business goal might be to achieve a 20 percent return on your total investment. A farm goal might be to develop a system of farming that is economically viable, socially acceptable, and environmentally sound. As you can see, goals can overlap, and different goal aspects can be present in a single goal. The important thing is to figure out what your goals are, so you can plan your farm” (Macher 1999).

Therefore:

Tradeoffs must be made - it is difficult to achieve all that we wish to achieve while still maintaining our idea of what a flagship farm is. In order to create a successful system, goals must be continuously made and reshaped to reflect the needs of students, stakeholders, and community members.
**Program: Infrastructure**

Definitions:
Infrastructure can be defined as the underlying foundation or basic framework around which a system or organization builds itself (Marion Webster online dictionary).

The Pattern:
The pattern of infrastructure for the UNM Flagship Farm should be determined based on the opportunities and challenges of the chosen site. The availability of existing infrastructure should be considered when determining the site of the farm. Moreover, the ultimate goals and principles of the farm, as stated in Chapter 1 Abiding Principles, should influence the choice of site. The creation of a self-sustaining farm should be the ultimate goal when planning the infrastructure of the farm, as we should always plan with the end in mind. Infrastructure decisions will largely depend on whether a partnership or sole student operation is chosen. If a partnership is chosen, evaluation of existing infrastructure will determine what further needs the farm will have and infrastructure can be planned accordingly.

On an organic, student operated Flagship Farm, site selection will determine many aspects of the infrastructure of the farm.

The selected farm needs to have a carefully calculated plan in order to efficiently build an infrastructure that supports all the components and operations that the members envision.

In order to be sustainable, innovative, and resilient, the infrastructural systems should minimize dependency on oil, optimize operations, and build in redundancy.

The selected farm needs to have a carefully calculated plan in order to efficiently build an infrastructure that supports all the components and operations that the members envision.
Analysis:

A) Factors considered: by assessing all the sites, we can begin to see more clearly which prospect could be the logical jump off point for the farm. The following characteristics were considered for each possible site:

- Water, land, soils, capital, microclimate, power sources, buildings, equipment, marketing, livestock, skills

B) Site Assessments: please see the Chapter entitled “Siting the Flagship Farm” for detailed information on each of the potential sites.

1. Corrales Farm

This opportunity is limited by the infrastructure already set in place by the owners. Building a community center or processing center wouldn’t be a possibility at this location, therefore putting the focus onto the creation of multifunctional greenhouses. These spaces could possibly accommodate education, storage, and food production. This site has water rights stemming from 1907, and could be adopted and started quickly.

2. North Campus Farm

This site consists of 2 acres on the northwest corner of the University of New Mexico North Golf Course. It is a blank canvas for us to create the vision of the farm. However, there is no existing infrastructure.

3. Skarsgard Farm Partnership

This opportunity is flexible, and would consist of working in conjunction with Skarsgard Farms in order to jump-start the first phase of the farm. There is approximately 2 acres of land available for Flagship Farm operations, and basic infrastructure is already in place (irrigation, equipment, vehicular access, etc.).

C) Systems: the configuration of the Flagship Farm based on the characters determined in section A.
After analysis of each site, it was determined that a basic skeleton of infrastructure would be required, no matter the location of the Flagship Farm. Water sources are an input that would influence the ultimate layout of the farm, however the logical spatial distribution of the farm would consist of the following characters:

**1) Water:**
   a. Irrigation; acequia and well use.
   b. Uses:
      i. Row crops
      ii. Orchard
      iii. Bathroom facilities
      iv. Community center
      v. Compost area
      vi. Community market
      vii. Flower/herb gardens
      viii. Tea house
      ix. Other

**2) Transportation:**
   a. Access:
      i. Vehicle access needs to be directed mainly towards greenhouses, row crops, the community market and the community center.
   b. Needs:
      i. Biodiesel/solar tractor
      ii. Biodiesel shuttle bus
      iii. Golf cart
   c. Infrastructure:
      i. Parking area
      ii. Bus/vehicle turn around
   d. Bus stop
   e. Close bike path proximity
   f. Bike racks/storage

**3) Labor:**
   a. Location:
      i. Administrative facilities should be located within the community center.
      ii. Managerial offices
      iii. Employee lockers, or storage area.
   b. Participants:
      i. Volunteers, internships, part-time, full time.
      ii. Students, faculty, community members.
      iii. A manager should be appointed for the farm, ideally an undergrad or graduate student.
      iv. Educational coordinator

**4. Soils:**
   a. Soil quality needs to be tested at any site adopted by the Flagship Farm to ensure that the quality is acceptable.
   b. Means of enhancement should be ONLY organic.

**5. Land:**
   a. The land used varies by site between 2 and 10 acres.
6. Employee lockers, or storage area.
   i. Participants:
   ii. Volunteers, internships, part-time, full time.
   iii. Students, faculty, community members.
   iv. A manager should be appointed for the farm, ideally an undergrad or graduate student.
   v. Educational coordinator

4. Soils:
   a. Soil quality needs to be tested at any site adopted by the Flagship Farm to ensure that the quality is acceptable.
   b. Means of enhancement should be ONLY organic.

5. Land:
   a. The land used varies by site between 2 and 10 acres.

6. Capital:
   a. USDA grant
   b. CSA income
   c. Educationally related income (workshops etc.)
   d. VPRED (Vice Provost for Research & Economic Development)
   e. Other investors

7. Climate:
   a. Greenhouses for steady, year-round crop production.

8. Power:
   a. Off-grid within 5 years?
   b. Carbon neutral

9. Buildings:
   a. Grow/livestock related:
      i. Greenhouses
      ii. Multifunctional processing and storage
      iii. Seed storage
      iv. Chicken coop
      v. Barn/other livestock housing.
      vi. Outdoor wash station
   b. Educational/Community related
      i. Community center
      ii. Welcome desk/Information area
      iii. Classrooms and labs
      iv. Social/dining area
      v. Bathrooms/locker rooms
      vi. Certified kitchen and processing area
      vii. Administrative offices
      viii. Brewery?
      ix. Tea house
      x. On site intern housing

c. Other structures:
   i. Benches/dining area
   ii. Outdoor shaded area and/or gazebo
   iii. Labyrinth
   iv. Outdoor amphitheatre
   v. Bus stop
   vi. Compost area
   vii. Butterfly house

10. Equipment:
    a. Production equipment
    b. Recreational equipment

11. Marketing:
    a. Efforts to market should target the University community first.
    b. The promotion of an all-student run farm should be a priority, along with educational activities.

12. Livestock:
    a. Pigs, goats, chickens, and bees.
Therefore:

When determining systems requirements, always keep the end goal in mind.

It is our intention to create a self-sustaining farm that functions as a productive entity as well as a sanctuary and a learning center for all. To do this, we must invest our resources in simple yet efficient techniques that use the least amount of energy possible. Our farm should be planned in a way that compliments and enhances the surrounding environment. In implementing permaculture techniques, we can create an environment that regenerates and strengthens itself and is patterned from our greatest teacher, nature. All equipment on the farm should be as carbon neutral as possible and serve many functions. This might mean that animals are used to plow fields and their manure used as compost or, maybe, a solar powered tractor could be employed. Buildings should serve multiple functions as well and will vary depending on zoning codes for any specific site. An example might be the use of a greenhouse as a season extender, a storage unit, and a classroom. Because our farm will be located in an arid climate, water (the vital element on the farm) should be conserved whenever possible used in the most efficient manner and stored when there is abundance. Some aspects of the farm might require power, so initial investments in clean and renewable sources of energy are essential. Depending on location, the farm might employ solar or wind power that may even be a revenue generator in the future. Labor is also essential for the farm to function. There must be a skilled farm manager with expertise in both conventional and permaculture methods of farming.

13. Skills:
a. Needs:
i. Seasoned farmer
ii. Waste/composting specialist
iii. Architect and design specialist
iv. Biodynamic/permaculture specialist
v. Marketing manager/intern
vi. Educational/outreach director
vii. Board of Directors
Programming: Value Chain

Definitions:
A Value Chain is "a high-level model of how business receives raw materials as input, adds value to the raw materials through various processes, and finishes products to customers. Value-Chain analysis looks at every step a business goes through, from a raw material to the eventual end-use. The goal is to deliver maximum value for the least possible total cost" ("Value Chain").

The Pattern:
There is a deep body of knowledge and research regarding value chain analysis (see Appendix D). This information will prove to be very helpful in creating and maintaining a robust, resilient campus farm. It is necessary to have support from the community and develop long-term relationships to insure the farms' success. This is possible by creating and evaluating a value chain. Supporting local business through partnerships will help build strong ties to the Albuquerque community. The outcome will not only be measured in profit, but also in training and innovation. In addition to being efficient in production and supportive of local foodshed development, the Farm will provide a myriad of educational opportunities for UNM students from diverse disciplines.

"If enterprises cannot satisfy the needs (or requirements, preferences, desires) of their buyers, the buyers will sooner or later turn to another supplier. Value chain development is a market-oriented approach. All activities of a particular chain are directed towards the market. It is therefore important to understand that all stakeholders along a particular value chain need to cooperate and coordinate their activities to satisfy the needs of the end consumer. If there is one weak link in the chain, the competitiveness of the overall value chain is endangered. (An Operational Guide to Local Value Chain Development. Pg. 6)."

The Flagship farm must keep up with the challenges of a fast paced world.
Potential challenges include: maintaining good relationships and consistency with suppliers, remaining connected to markets for our products, effectively publicizing the educational and food shed opportunities and staying on top of the economics of production.

Analysis:
In order to be self-sustaining, non-wasteful and balanced over time, any enterprise must be profitable and efficient. To comprehend and prepare for all outputs, as well as measure the outcomes and specific objectives, all inputs must be carefully considered.

Among our favorite farms, Skarsgard Farms in Albuquerque, New Mexico is a model for quality, service, environmental stewardship, humane treatment of livestock, volume production, distribution, diversity of products, fair treatment of workers, fearless entrepreneurship, and community leadership.

The value chain can be used to devise and maintain an educational model as well. Although these products (educated students, graduates with professional expertise) may be more difficult to measure, universities have a well-established business model, and there is a strong market, or interest, in agriculture amongst students. According to U.S. Deputy Secretary of Agriculture Kathleen Merrigan, New Mexico has the highest average age of farmers and ranchers of any state at nearly 60 years old, so we have a growing market for foodshed developers and skilled workers/farmers of all types.

As evidenced in this diagram, a campus farm can provide a variety of hands-on learning opportunities and positive outcomes for many UNM departments. UNM will become more appealing by offering life long skills uniquely offered by engaging in fieldwork.

Therefore:
Value chain models are a critical tool for ensuring the success of UNM’s Flagship Farm.
Educational Model

Definitions:
Education develops knowledge, skill, mind, and character by formal schooling. Experience is cumulative, the integral of life’s opportunities, trials, choices, responses, evaluations, and reflections that continually reconfigure the student’s susceptibility to future stimuli.

The Pattern:
Education at a flagship institution is transformative of people and society. A farm is an active interface between student and the body of formal knowledge. Effort spent learning grows the interface moment by moment, making it an ever more effective device for transformation. Among the student population, the collective interface ramifies, twining from farm to campus, like visceral villi that make the origin of food transparent to consumers, changing them intellectually and corporally by the experience of food. Experiential education is authentic to the ontogeny of the person. In a formal setting it is organic and mutual, where teacher and student are both changed by the interchange. Collectively the population of citizens and scholars moves toward rational, meaningful, purposeful outcomes.

The recent historical shift from a population of agricultural producers to one of consumers has cut the direct ties between daily acts of eating and the on-farm flows of water, energy, capital, biodiversity, and labor. Today, few consumers have reason to learn the true value and fragility of seed lines which are the genetic legacy of our ancestor’s highly intentional and profoundly contextual selection during 10,000 years of agricultural development. No one knows what choices society will have to make to continue feeding people in the future, which will be one of rapid change along many opposing dimensions.

Too few kids grow up on farms.
Analysis:

Universities can deliver mission-oriented curricula to equip adaptable citizen participants for a never-ending process of innovation. Broadly, a flagship farm is a vehicle to launch students into professional careers in the local food system. The farm will be sustainable, democratic, transparent in its practices, carbon-neutral, and socially equitable to ensure access to healthy food throughout the community. As such, the education pattern is a transdisciplinary curriculum that evolves ecologically, sociologically, and economically.

This diagram elucidates the connections between interdisciplinary collaboration and opportunities for alternative, hands-on learning through a campus farm.

Therefore:

A curriculum for a sustainable, transparent Flagship Farm:

- Implements sustainable local food systems processes across the university in partnership with the community, private business, and governmental agencies
- Honors the cultural, biophysical, and academic diversity of the state.
- Includes a set of thematically diverse Freshman Learning Communities and upper level interdisciplinary opportunities that engage scholars from across the campus
- Transforms the way students, faculty, and the community think about the origin of food, and its impacts on culture and the environment.
- Represents the principles of a sustainable, student run entity as stated in the Abiding Principles chapter.

1. Use the farm as an extended laboratory available across the curriculum, like a library that serves all. Guard against it becoming an orphan among other facilities in the commons.
   - Include research projects for undergraduates in core courses; graduate student theses.
   - Build long-term projects where students see their work add to a legacy, e.g., Russell Ranch UC Davis soil health study, seed selection studies, engineering solutions to farm management, distribution systems, water management.

2. Design curricula that see the farm as a gateway to the economic, environmental, and social aspects of the local food system, its communities, and ecosystems.
   - Courses will convey the relevance of food to heritage and identity, equity and access, e.g., in American Studies, Native American Studies, Africana Studies.

3. A Flagship Farm is a destination and magnet to attract students, scholars, and entrepreneurs alike who seek collaboration with innovative practitioners, teachers, and researchers.
   - Shelly Michalski's SUST 499 project will document international agricultural education programs as possible sources of visitors and destinations for UNM students.
   - Work with UNM International Studies Program and the Latin America and Iberian Institute, LAII.
   - The farm would be included in collaborations with partners at the University of Arizona and in the Inter-institutional Network for Agriculture and Sustainable Food Systems (INFAS).

Create a curriculum for a sustainable, transparent Flagship Farm
4. Students gain hands-on experience with operations, management, risks, problem solving, and the joy of success.

A student CSA, which serves students directly on campus by means of drop-off locations and a farm stand manifests the farm in a powerful way and serves as the medium in which many aspects of education can come together. The organization of credit classes/internships that educate students while filling the roles necessary to ensure the longevity of the CSA will breed a wave of new agrarians and entrepreneurs for all levels of the value chain that are experienced and invested in sustainability as well as create a harmonious, nutritious exchange between students. This organic exchange will strengthen campus bonds while working towards the goal of being a sustainable, carbon neutral institution.

The education entwined with the student run CSA should be multidimensional in a way which allows for creative expression in all disciplines.

Suggested classes/internships could include the following topics along with others:
- Agroecology
- Cooperatives and CSA's
- Landscape design
- Ethics/ethics
- Local food systems
- Growers markets

Learning is expressed in but not limited to laboratory and research science, creative writing, studio art, architecture and design, engineering, and economics.

5. Use the farm to recruit students to UNM both nationally and internationally, and strive for a minority majority institution.

As a hybrid private and non-profit project, the farm is an aggregator/wholesale distributor to an established CSA to provide healthy, affordable food to chronically underserved Hispanic and other minority families at an adjacent community center and a nearby elementary school. The project will accommodate farm visits by classes from among 136 Albuquerque Public Schools, thereby building a reputation for quality, education, and outreach that attracts and retains students.
Logic Model

Definition:
The logic model was devised in the 1970’s as a tool to evaluate the effectiveness of programs. Funders, organizers, managers, potential partners examine known inputs, activities, outputs, and outcomes to determine the feasibility and scope of a project.

The Pattern:
The logic model can be used to assess the efficacy of a proposal instead of an income statement or pro-forma, in which the primary desired outcome is profit. In this way, groups can design for multiple outcomes.

Although it’s important to name all the major elements of a process, the emphasis should be placed on outcomes; the effects and impacts of our efforts must justify the activity.

Analysis:
For example, a young person (let’s say ‘Hannah’) decides she wants to open a lemonade stand in her parents’ front yard. Hannah would like to make a little money to save for a bike. She got the idea of a lemonade stand when she noticed that local restaurants threw away unused lemon slices at the end of each day (Hannah feels strongly about using resources wisely and reducing ‘waste’). Also, a lot of kids and families walk and ride their bikes past her house, and Hannah thinks that, if they had a place to stop for refreshment, neighbors may increase these activities and stay healthy.

Knowing that she is planning this enterprise to yield multiple outcomes (healthy neighbors, less produce in the landfills, and a new bike), Hannah can use the logic model to design her lemonade stand for optimal benefits.
Therefore:

Use a logic model to design for multiple outcomes.

The Flagship Farm study team has generated a Logic Model for the proposed Flagship Farm:

Situation:
- New Mexico is renowned for its 500-year heritage of Hispanic agriculture in diverse environments, including rivers, deserts, and mountains.
- Young producers from non-agrarian backgrounds see opportunity amid ongoing crises of food insecurity and declining nutritional health.
- Hispanic and Puebloan agriculture are returning to favor but are challenged by threats to water rights and heritage seed lines.
- The disconnection between where food comes from and what we put on our tables in part causes health problems.
- We have the potential to resurrect the pre-industrial diet.
- There is a need to return to organic farming because our lands are being polluted by industrial farming methods.
- The University of New Mexico can be an incubator for small innovative farms.
- Small farms tend to be undercapitalized and isolated from one another and current research.
- New Mexico has a huge rural population that needs access to higher education.
- New Mexico is high on national food insecurity rating.

INPUTS:
- Neighbors and communities
- Student organizations
- Relationship and mentors in experienced farmers “The Friends Service”
- Campus food service
- Acequia & farm culture
- Experience from farms and foodshed field school
- Growers markets
- Underutilized land
- MRCOG
- Montanta COOP 20 years exp
- CDC
- Department diversity at University
- Cultures
- Money
THE UNIVERSITY OF NEW MEXICO

New Mexico’s Flagship Farm

LOGIC MODEL

Activities:
- Summer Field School
- Student internships
- Community center used to facilitate classes, projects and culinary
- Nutrition instruction
- Create UNMF FF product brand
- Apply knowledge to everyday life
- K-12 education and tours, schools
- Curriculum – core class
- Farmer’s market
- Recreational Social destination – weddings, graduation, harvest festivals
- Living learning community on farm
- Research
- Work-study
- Outreach to other campuses – conference

Outputs (measurable):
- New small-scale farms/enterprises
- Provision of services, consulting, equipment for local farmers i.e. greenhouse space, processing facilities, seed banks and business advisement
- Foodshed specialists: Minor in foodshed development
- Lifelong learner – continuing education for multigenerations and cultures
- Campus brand products
- Teaching across the curriculum
- Agro-urban interface
- Land health: improvement, biodiversity, preserved open space
- Increased local food sources, reduce food miles
- Compost
- Living wage + benefits
- Community amenity
- Foodshed educated elementary and secondary school kids
- Improved public policy – changed minds
- Resurrection of pre-industrial dietary habits
- Good food

OUTCOMES (more difficult to measure):
- Leaders, organizers, competent actors in viable, independent foodshed
- Students hold a large world view, therefore foodsheds become a lifelong mission
- Expansion, use of aeral land to insure food security
- Make food more central conversation focus, along with water, health and communities
- Food serves as the hub to many disciplines: carve out unique job opportunity niches – health, nutrition, urban planning
- Transformative (uninformed consumer to informed producer, activist)
- Cultural bridges & interdependence
- Increasing value/understanding
- Policy change toward acequia model

Although it’s important to name all the major elements of a process, the emphasis should be placed on outcomes; the effects and impacts of our efforts must justify the activity.
Business Model

Definition:
A business model is used to create and capture value within a market network of producers, suppliers and consumers. It describes, “what a company does and how it makes money from doing it” (Vorley).

Pattern:
A business plan is used to map out the strategies needed for the start up and operation of a business and to track progress of that business against its goals (USDA). It provides a feedback loop with stakeholders and provides valuable information for funding sources.

A student farm cannot be successful without a business plan to guide the development and implementation of the farm and direct daily operations.

Analysis:
“Decision making in organic farming can be complex and seemingly intractable, principally because of the inherent trade-offs between sociopolitical, environmental, ecological, technological, and economic factors. The selection of appropriate business alternatives often involves multiple additional criteria, such as the distribution of costs and benefits, environmental impacts for different populations, safety, ecological risk, or human values.” (Prazek)

Developing a Business Plan:
The business plan for the Flagship Farm should meet student, faculty, University and community needs and expectations. By planning the operational structure, suitable crops, business relations, distribution network and cost, equipment and production, time and...
costs can be realistically determined and planned. Additionally, a financial model can be used to make informed decisions and meet the abiding principles of the Flagship Farm. It is a baseline which we can reference as the Farm moves from the realm of values, dreams and principles to manifestation in the physical world.

Several considerations are informing our selection of a hybrid business model, as we seek to establish a Flagship Farm on the UNM campus. Some urgency has been expressed by students and professors; there is a stated interest in planting and harvesting crops as early as 2013. There is a sense of urgency due to the following facts:

- Climate change is a reality.
- Our economic vitality continues to be challenged.
- Lack of food security is a reality in New Mexico. Only 2% of the food consumed in New Mexico is produced here. The remainder is imported and dependent on fossil fuels for its production and delivery.

Although locating the farm on/near campus would be ideal, securing land which is currently owned by the UNM golf course or Lobo Village sites will be a lengthy, cumbersome process. Alternately, UNM could lease two (2) acres of land adjacent to an active plot at the Skarsgard Farm.

Two acres will provide enough produce to a serve a 70 person CSA potential population on campus. There is already an Internship program being offered at Skarsgard in which students spend 20 hours weekly in planting, cultivating, harvesting, washing, packing – direct agricultural production work which supports the CSA business. Another eight (8) hours is used for marketing, advertising and business aspects, valuable learning for any business operation.

Many key principles and values of the Flagship Farm is also shared by Skarsgard Farms – 1) interdisciplinary curriculum; 2) food shed professional education-farmers, marketers, managers, seed savers, distributors, cooperatives, farm market participants; 3) CSA; 4) state-of-the-art educational center; 5) best environmental (permaculture) practices; 6) full time employment, to name a few. There is a potential for mutually beneficial components – UNM wants the structure and expertise available at Skarsgard, while the farm owner wants to expand the capacity to teach, needs some new buildings and knows that such a partnership will naturally increase his market share.

Benefits for UNM

- Established relationship with Skarsgard Farm owner and the UNM Sustainability Studies Program Director
- Successful CSA which distributes food throughout the state; excellent business track record, using regional farmer and co-op relationships in Colorado, Arizona, Texas.
- Farm has educational internships established, including training in the essential business aspects of the CSA (marketing, merchandising, accounting).
- Fast start-up (students can start any time).
- Intensive capitalization costs are not required.
- Summer “fluke” period (students on break) can be absorbed.
- “Rise food” or “raise farmers” – both end goals can be met.
- Wish to coordinate with Lobo Growers market as an outlet is possible.

Benefits to Skarsgard

- More people, students, customers on site. Labor pool expands.
- Potential classroom, bathroom, storage/preparation shed, solar showers could be funded by UNM.
- Market share of the Skarsgard CSA will increase; potential pool of investors is enhanced.
- Internship lends itself well to co-establishing a curriculum with UNSM. Applied research on NM drought tolerant crops might be secured. Grain and protein production might be eligible for funding.
- UNM/SSP association provides ‘credibility’. Climate change impact on farming can be brought to the academic and practice communities together.
- Security on farm improved.
- Two (2) of 36 acres, leased to UNM, will not make or break the existing CSA.
The Flagship Farm class (Sust. 402, UNM Fall semester 2012) is recommending the formation of a partnership with Skarsgard Farms located 20 minutes from the main UNM campus in Albuquerque’s South Valley. The organization, services and business relationships and the owner himself mirror the choices and abiding principles (needed in a farm) selected by class members over the course of a semester.

Therefore:

In order ensure a successful and expedient beginning for the Flagship Farm, develop a business plan and form a partnership with Skarsgard Farms.

More About Skarsgard Farms

Monte Skarsgard, the owner is from Albuquerque. He attended Albuquerque Academy, received a business degree from the University of California at Santa Barbara, followed by an organic farming certificate from the University of California at Santa Cruz, an established student farm. Monte “cut his teeth” at the Full Circle CSA in Seattle for two years. What he knows about CSA’s, food production and distribution is more than partially due to his Full Circle employment. Monte’s father was a farmer in North Dakota, who moved to Albuquerque to establish a law practice. Farming and business are in Monte’s DNA.

Skarsgard Farms was established in 2000, and has 36 acres of land in annual production. There are eight (8) greenhouses, a start shed, barn to house equipment and limited staff housing. It was incorporated as an LLC (limited liability corporation) in 2003. The majority of income is based on a successful CSA (community supported agriculture) which has 3,300 members distributed throughout New Mexico (Albuquerque, Placitas, Santa Fe, Las Cruces, El Paso). Members receive a weekly delivery of primarily locally grown food.

Skarsgard has contracts with farms in Colorado (grass fed beef, apples, potatoes, grains), Arizona (citrus) and even Kino Bay, Mexico (avocados) which provide a variety of excellent food to New Mexico clients. Rasband Dairy products, eggs and local pork have been added to boxes. Relationships with New Mexico farms (to buy excess produce) also augment the local boxes. Dinner or meal based boxes (meat, vegetables, starch) are being offered in 2013. Elceiosor Farms in Puyose, Colorado provides cherries, plums, peaches – 100% of their corps – to Skarsgard. Patagonia Farm in Tucson, Arizona wholesales tomatoes, grapefruit and oranges to Skarsgard, reflective of good regional economic interdependence. Secondary income is derived from an organic starts shed and nursery plant sales. Food sales are made to Flying Star restaurants and La Montanita Co-op, both local businesses, based in Albuquerque.

$2.5 million in gross sales was realized in 2011. $625,000 (salary, health, dental) is the budget for 31 full time staff who also receive a food box (valued at $33). The staff has stayed constant for 3 years. Two general managers, both 30 years old, started at Skarsgard Farms. In order ensure a successful and expedient beginning for the Flagship Farm, develop a business plan and form a partnership with Skarsgard Farms.
Skarsgard as interns, the training ground for most of the farm staff. The Skarsgard debt is moderate. Public investments of $1,000 or more receive an 8% ROI (2% more than Organic Valley), a rather handsome return in the late 2012 economy.

Good farming practices are evident at Skarsgard. Every 2-3 months, sorghum or milo is planted to restore soil nutrition, allowing the land to rest. Acreage and deep wells provide the water which is delivered through a filtered drip system. Fish and kelp, both organic fertilizers, are friendly to soil and crops.

UNM – Skarsgard Partnership Literature Review/Bibliography

As a general reference to support this proposed relationship between Skarsgard & UNM, we suggest referring to:

1) The Agricultural Sustainability Institute at the University of California-Davis. asi@ucdavis.edu (530) 772-3915 contracts with nearby Russell Ranch, which provides the land and the structure for LTRAS (Long Term Research in Agricultural Sustainability) and dry lands agriculture. The UC-Davis College of Agriculture & Environmental Sciences provides $250,000 annually to ASI. As a member of the UC system, another $500,000 is available over 4 years to the Davis SAREP (Sustainable Agriculture Residential Education Program). Rather well endowed by FY 2011, ASI's annual funding is now $4.3 million. (studentfarm.ucdavis.edu/about/funding)

(Interviews conducted by telephone, 21 and 28 Nov 12 to get a fuller understanding of the UC-David ASI website material).

There is another complimentary aspect of interest. UC-Davis also has a W. K. Kellogg Endowed Chair, a Farmer’s Market on campus and offers a major in Sustainable Agriculture (a stretch goal for UNM).

2) The CSA (Community Supported Agriculture) project, part of the New Mexico State University’s OASIS Student Farm operated for 10 semesters. “Students were hired in the summer: A full-time farm manager coordinated production, harvest, distribution, and student activities on the farm.” When the farm was first developed, managers estimated that 1 acre would feed 20 full-share members. (NMSU OASIS Research Report 760, 2006, pg. 3)

NMSU also offers a degree in Sustainable Agriculture. The USDA National Community Small Farms program provided $250,000 to OASIS, which operates on two private farms, the Fabian Garcia and Leyendecker farms. A New Mexico Legislative appropriation of $274,000 provided funds for staff, planning, design and capital equipment.

3) The Duke University campus farm is two years old as of 28 Nov 2011. (Duke Chronicle, “Campus Farm Has Fruitful First Year” by Matt Barnett). Students “developed the concept for the farm while enrolled in ENV 171, Food & Energy” in the Spring of 2010. They contacted the University architect, and made arrangements with Duke Dining and Bon Appetit Management Company to buy all produce. Student volunteers “invested 650 hours and ….. generated 5,000 pounds of produce.”


Definitions:

Objectives are intentions expressed as goals or specific targets and evaluation is the process of carefully assessing the worth, value, or condition of things. Evaluation methods are often used to determine whether an objective has been met.

Pattern:

The University higher education model is based on the meeting of learning objectives over short term and long term periods. Performance is regularly assessed by instructors and review committees. Similarly, scheduled progress reports and reviews help research teams achieve benchmarks. The University maintains a great deal of data in order to track graduation rates, demographic profiles of the student body, budgets, admissions, etc.

Additionally, building professionals utilize evaluation and criteria methodologies, such as the pro forma schedules used in real estate, LEED for green building practices, and SEED for ethical and sustainable projects. These evaluation systems can be used to determine intentions, establish specific goals, and demonstrate performance. For example, Castetter Hall, home of the Biology Department, was the first LEED Certified building on UNM’s campus. The project met and documented specific benchmarks concerning energy efficiency performance, water conservation, indoor air quality, materials, and site, earning credits that added up to LEED-Gold level status.

Like buildings, educational programs, and other projects, the stakeholders of the Flagship Farm need to determine how the principles will be expressed in sound practices and thoughtful intentions. Although we are not aware of metrics used by farmers to determine the soundness, profitability, or sustainability of their farms, these tools probably exist.

Without a feedback loop, replete with metrics, best management practices, and modification methods, the Farm cannot sustain success.

“IF you don’t know where you are going, how will you know when you get there?”

- Macher 1999
Analysis:

It's important for the principles of the Flagship Farm to be expressed as both short and long term objectives (goals) of the Farm and drive the design of its various components. By establishing metrics, developing best management practices and implementing strategies for testing and modifying performance, we can know if and when stated goals are met.

"Why do you need goals for your life and your business? The answer is simple: The more goals you write down, the better your chances of success" (Macher 1999).

Therefore:

Develop a series of short and long term objectives for the Farm and establish metrics for measuring performance.

The following Table gives examples of the types of goals that might be set, along with an indication of scheduling and suggestions for metrics. There are several parallel lines of intention here (food production, education, community engagement, innovation) that must be simultaneously realized. These interdependent initiatives will all have the common attributes (multidisciplinary, transparent, productive, campus-community connected, and sustainable) that embody our guiding principles.

An actual set of metrics should be developed in collaboration with multiple stakeholders and by availing ourselves of the expertise of individuals and groups that have operated community or institutionally-based farms. A detailed schedule of goals and interim reviews is critical for starting and maintaining the farm.
APPENDIX A: Original Concept

UNM Campus Community Urban Farm
Prepared by Bruce T. Milne, Director, Sustainability Studies Program

Motivation: Add value to open space; Fulfill objectives of the UNM Strategic Plan and Carbon Action Plan; facilitate nutritional health for campus and community.

Concept: Operate a 5-10 acre organic, four-season urban farm adjunct to the UNM North Golf Course to serve campus and neighborhoods.

Management: Collaborative of independent vendor enterprises (row crops, orchard, bees, aquaponics, compost) that serve CSA and Chartwells dining halls. Room for community garden plots for use by neighbors, UNM students, faculty, staff. Contract with professional farm manager for continuity.

Education: K-12 venue, Sustainability Studies minor courses, freshman learning communities, writing across the curriculum, ecology, ecosystem science, environmental studies, water resources, community planning, landscape architecture, community health & nutrition, geography.

APPENDIX

APPENDIX B: UNM Climate Action Plan Excerpts

IV. Strategic Framework

Through time, the campus carbon plan will be adjusted to accommodate evolving policies, technologies, costs, and opportunities. Thus, a strategic framework to serve current and future plans establishes criteria and principles to guide future choices. The strategic framework for carbon emissions reduction and sustainability satisfies three criteria:

1. Outcomes are measurable, achievable, and performance based.
2. Fiscal responsibility is adhered to.
3. Risks to the University are characterized and minimized.

Achievement of carbon neutrality requires measurement of performance, cost, and risk. The carbon neutral plan includes opportunities to reduce emissions, improve energy efficiency, and adapt to a changing climate (IPCC 2007). This plan requires carbon inventory data that describe the sources (1) measuring carbon emissions for each campus, (2) performing a financial assessment of alternative projects, and (3) using an emissions model to quantify the change in the University’s carbon inventory (Hawken et al. 1999). This requires the University to develop risk-based outcomes (carbon neutrality) that ensure the safety of people and assets. The strategic framework is based on the principles of the American Planning Association (APPA 2009), which includes the three criteria:

1. Outcomes are measurable, achievable, and performance-based.
2. Fiscal responsibility is adhered to.
3. Risks to the University are characterized and minimized.

The strategic framework is grounded on the principle of holism (UNM Policy 2100), whereby designs and solutions pay forward to support and restore systems that provide the materials and energy for well-being (Hawken et al. 1999). From UNM Policy 2100, “the Principle of Holism means that the system as a whole determines in an important way how the parts behave. The system includes physical, biological, chemical, social, economic, and cultural elements among others. Holism encourages strategies that couple desired outcomes to incentives. Holism includes life-cycle accounting for environmental and social impacts formed in the geographic context of the campus. Holism views waste as potential resource and thus favors strategies that follow the hierarchy of waste prevention, recycling, reuse, treatment, and disposal. Holism requires transparency in reporting and participation in decision making by students, faculty, staff, and the public. Holism endows the campus with systems for sustainability (Bornstein 1997), namely social equity, environmental protection, and economic opportunity, often characterized in people, plants, and pets. Social equity and well-being (Hawken et al. 1999) encompass four dimensions: body, mind, heart, and spirit, which point to physical needs, knowledge, connection, and meaning (Heal 2006). Global surveys reveal a disconnect between economic wealth and holistic, subjective well-being (Fig. 1). Thus, lives bereft of connection and meaningfulness are due in part to excessive economic production that compromises the health in the hands of a small minority while compounding the democratic foundations of free society (Alperovitz 2005, Speth 2008).

Holism affords the view that UNM is an anchor institution (Alperovitz 2005) where inherent long-term stability and demand for goods and services justify a partnership of “town and gown” (Freeland 2005). UNM could drive growth of a local green economy where students and the institution benefit through cooperative models of ownership and wealth. Thus, the plan envisions ways to leverage the financial risks of students and their families to accomplish the University’s goals of retention and graduation. For example, the creation of student-owned businesses, such as the Lobo Growers Market (2007), to serve the campus and community would enable students to accrue equity while employed, and ultimately
dividends after graduation, thereby lessening the financial risk of remaining in school.

Strong sustainability (Speth 2006:12) ([4]) arose in the hope between resources, supply, and waste (McDonough and Braungart 2002). Waste is valued as a resource that enhances and preservers the productivity of land, water, and nature to support human needs. Strong sustainability includes management of greenhouse gas emissions within a carbon cap & trade policy (Krupp and Horn 2008). Management extends throughout the value chain from raw resource extraction through product use and disposal/recycling, in keeping with trends at state, regional, national, and international levels. Strong sustainability points toward solutions that include waste avoidance and recycling and the purchase (or manufacture) of recycled and eco-friendly items. UNM should implement a recycled-paper-only policy. Food and plant waste should go to an on-site compost to enrich landscaping or continue to go to Soilutions. UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order). UNM should either implement a recycled-paper-only policy. Food and plant waste should go to an on-site compost to enrich landscaping or continue to go to Soilutions.

B. Roadmap to Innovation: The Regenerative Enterprise Zone (RED)

ii. Strive to increase the efficiency of its water systems.

5. Water

i. Shift UNM towards sustainable food practices - On-campus dining facilities should expand its roster of sustainable food practices and offerings. Currently, students are encouraged to purchase local, organic and/or fair trade food (prioritized in that order). In order to be fully sustainable, UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order). UNM should either implement a recycled-paper-only policy. Food and plant waste should go to an on-site compost to enrich landscaping or continue to go to Soilutions. UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order).

C. Designation

i. Implement a “Water Wise” strategy - Drawing on the practices of desert agriculture and aquaculture, the战略 framework for long term carbon neutral facility planning addresses financial sustainability, and thrill through focus on carbon inventory, cost-benefit analysis, and real estate assessment, respectively. Carbon accounting includes direct, indirect, and miscellaneous flows that cut across various sectors including electricity, thermal energy, water, structure, landscape, transportation, and food. Strategies guidelines available at Architecture 2030 and the US Green Building Council’s LEED standards address major sectors and serve as models for applications for food, landscapes, and transportation. Holistic is the guiding principle, where well being is achieved by satisfying needs of the body, mind, and spirit. Conceptualizing the campus as an anchor institution supports opportunities for thriving community relationships that feed back to redefine financial risks of students and thereby improve recruitment, retention, and graduation rates.

4. Environmental quality

i. Shift UNM towards sustainable food practices - On-campus dining facilities should expand its roster of sustainable food practices and offerings. Currently, students are encouraged to purchase local, organic and/or fair trade food (prioritized in that order). In order to be fully sustainable, UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order).

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iii. Invest in on-campus vertical farms - Current research shows that vertical farms are potentially the most efficient method of making food available to the students. In order to be fully sustainable, UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order).

iv. Create a community resource center for sustainability and green entrepreneurship - UNM’s role as an anchor institution can serve the community by creating a resource center for community members to learn about and develop sustainable projects and businesses. Anchor institutions can serve the community by creating a resource center for community members to learn about and develop sustainable projects and businesses.

v. Shift UNM towards sustainable food practices - On-campus dining facilities should expand its roster of sustainable food practices and offerings. Currently, students are encouraged to purchase local, organic and/or fair trade food (prioritized in that order). In order to be fully sustainable, UNM could produce a large portion of the food students consume at UNM, ally with La Montanita Co-op or start a food co-op of its own to ensure that fresh, local produce is available to the students. In order to be fully sustainable, UNM could either purchase of local, organic and/or fair trade food (prioritized in that order).

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Appendix D: Value Chain Analysis

For more information on value chain analysis, refer to the following PDF’s.


http://www.sarep.ucdavis.edu/idl/VBSCLiteratureReview1erman.5.31.12_compressed.pdf

Appendix C: Open Space Method

Appendix E: UC Davis Blueprint for Green Future
Works Cited


