Re-inventing the UBC Farm:
Urban Agriculture and Forestry on the Point Grey Campus

Program and Prospectus:
a working document

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Executive Summary

With the impending development of the South and Mid Campus lands UBC has a unique opportunity to integrate existing farm and forest lands into an internationally significant centre for sustainable urban agriculture, forest and food systems. The proposed UBC Farm enterprise would promote research, education, extension on the various social, environmental, economic and ecological dimensions of urban farming and forestry, and sustainable food systems. The main focus of the Farm would be to support the University's educational mandate and to provide an on-campus experiential learning environment for University students, staff, faculty and neighbouring residents. The UBC Farm would be situated on the Point Grey Campus and would include the MacMillan Precinct, Totem Field, the Botanical Garden and the UBC South Campus Farm. The proposed UBC Farm enterprise would benefit the university community as well as a diverse array of local, regional, provincial, national and international constituents.

In the short-term it is essential to improve the stewardship of our existing agricultural facilities so that they might inform the management of the overall campus land-base. In the medium and long-term, the UBC Farm idea should inform the Comprehensive Community Planning process in a manner that ensures a place for The UBC Farm concept into the future, thereby supporting the development of a complete community while substantially reducing its ecological impact.

UBC is unique amongst Agricultural and Forestry Faculties in Canada We sit not amongst fields of wheat or canola, nor in the food processing mecca of central Canada. Instead, we find ourselves on Point Grey, next to an ever-growing urban metropolis in a Province that grows 80% of its food on the same 80% of the land where most of the people live. This means that our challenges are unique and our responses to them must be creative and far-reaching

The UBC Farm idea is a unique response to our strengths and is part of building a strong learning base for the future on the UBC campus.

I. CONTEXT

A. BACKGROUND

As one of the founding Faculties of the University of British Columbia, the Faculty of Agricultural Sciences has a long history of agricultural land use on the Point Grey campus. At one time most of the current campus was in use for research and education in animal and crop husbandry. As demands on central campus lands have grown, our agricultural activities have been pushed to the periphery of the main campus. Since the early 1970's the Faculty's land base responsibilities have been confined to Totem Field, the Botanical Garden and the South Campus facilities. With the approval of the Official Community Plan (OCP) and the initiation of the Comprehensive Community Plan process these responsibilities are in a state of dynamic change.

The last third of the twentieth century has seen the Faculty's transition from Agriculture to Agricultural Sciences in an effort to keep pace with most other academic institutions in bringing depth and rigor to the applications of science to agriculture. The general orientation shifted from land and field to the laboratory. Broad-based learning activities necessary to understand traditional, integrated and arguably more sustainable farming systems were de-emphasized. As we now realise, our students benefit from a balanced combination of science-based agriculture and the more holistic learning activities necessary to achieve sustainable agriculture practices "on the ground".

B. INTEREST

As we begin the new century, it is time, along with our two allied Faculties of Forestry and Science to rethink our relationship and use of agricultural and forest lands on the UBC Point Grey campus. The advent of the Official and the Comprehensive Community Plans presents the opportunity to re-invent "The UBC Farm" with short, medium and long-term visions. The development of our new land, food and community curriculum, in concert with the philosophy of *Trek 2000* requires that opportunities for experiential learning are provided across the campus. The view shifts to the whole campus, not just the classroom, as a potential learning environment.

The nature of the Faculty of Agricultural Sciences' campus activities must follow from our Core Values. Clearly, the Faculty needs to renew its relationship with our agricultural land base at our on-campus facilities as well as at our enterprises in Agassiz and Oyster River. Our stewardship of these lands will express our Core Values, providing an example to the campus community, the Greater Vancouver region, across Canada and internationally. A statement of our vision and goals must include the future use of the land, especially as urban agriculture and agroforestry in the Province begin to gain prominence as contributors to sustainability.

C. EXISTING FACILITIES

The current land-based facilities include the MacMillan Precinct, Totem Field, The Botanical Garden, and the UBC South Campus Farm (see Map).

MacMillan Precinct

This 4-hectare area is located immediately adjacent to the MacMillan Building at 2357 Main Mall. It includes the UBC Landscape Architecture Program Offices and Studio, the UBC Food and Bike Coops, a modern greenhouse facility, 5 portables, a 120-space parking lot and the remnants of a 48-year-old orchard.

Totem Field

This 5.25-hectare agricultural landscape is located at the south end of West Mall. The site has a complement of well-maintained buildings useful for machinery storage and repair and soil and plant sample drying and processing. A meteorological station is maintained for climate/weather monitoring and for teaching purposes. Under the provisions of the 1997 OCP this entire area is protected by an education/housing reserve for a period of 12 years.

The UBC Botanical Garden

The Botanical Garden at UBC was first established in 1912 making it the oldest university garden in Canada. The current Botanical Garden site began development at the intersection of Southwest Marine Drive and West Mall in 1968 under the directorship of Dr. Roy Taylor. Today the garden encompasses approximately 32 hectares. The three main facilities of the Garden include: a Reception and Education Centre for use by the Friends of the Garden and for outside rental; the Research and Administration Building for Garden Staff, Davidson Club and the Friends of the Garden; and, the Shop in the Garden for selling garden gifts and plants.

Special mention needs to be made about the Nitobe Memorial Garden. This is considered to be the best traditional, authentic Japanese Tea and Stroll Garden in North America and is one of the campus “gems” for the community and visitors.

The UBC South Campus Farm

For the purposes of this document, all bio-science related lands and facilities located south of 16th Avenue are included under the heading of the UBC South Campus Farm. This includes the Poultry and Animal Sciences facilities (Faculty of Agricultural Sciences), the Animal Care (VP Research) and Zoology facilities (Faculty of Science), in addition to the Forest Sciences, Botany (Faculty of Sciences), Agricultural Sciences, Botanical Garden (Faculty of Agricultural Sciences) and Plant Operations areas. Currently, these facilities are located on a varied landscape of approximately 55 hectares, which includes large, relatively secluded open and forested areas. Under the provisions of the 1997 OCP approximately 40 hectares of this area are protected by an education/housing reserve for a period of 12 years.

UBC Farm Map

II. VISION

The basis for our interest in re-inventing the UBC Farm is expressed by David Orr's statement,

> *"Knowledge of a place - where you are and where you come from - is intertwined with knowledge of who you are. Landscape, in other words, shapes mindscape."*[1]

Orr suggests that effective learning occurs in the context of teaching both inside and outside the classroom – in the laboratories, halls and landscapes of the institution. Such a holistic approach requires that successful curricula be supported by the institutional environment. It follows that if sustainability is to be a central feature of the mission of the UBC Faculty of Agricultural Sciences, it must be reflected in the practices as well as the teaching context of the Faculty, its supporting functions, and its ancillary facilities. We believe that the most effective way of doing this is through the retention, re-integration and operation of an on-campus farm.

A. OUR VISION FOR THE UBC FARM

The UBC Faculty of Agricultural Sciences requires a working agricultural landscape in close proximity to its students, faculty and staff to allow for a range of agroecological learning experiences connecting theory and practice. This requirement is met with the retention, re-design and operation of an on-campus farm system - The UBC Farm. The development of a sustainable community on the Point Grey campus described in the OCP and CCP documents provides a number of synergetic opportunities between the community and our proposed Farm that might explore notions of research-in-action, learning-in-action, and productive open space within an academic community context.

Our current on-campus agricultural lands are comparable to the GVRD Green Zone. And like a number of GVRD Green Zone areas they encompass working agricultural lands that produce food and protect and enhance local ecosystems while providing recreational opportunities and aesthetically pleasing rural views. It is worthwhile noting that this existing farmland is currently the “only” operating farm found within the City of Vancouver environs.

In the short-term we would like to improve the stewardship of our existing agricultural facilities so that they might inform the management of the overall campus land-base. In the medium and long-term, we hope to engage the Comprehensive Community Planning process in a manner that ensures a place for The UBC Farm concept into the future, thereby supporting the development of a complete community while substantially reducing its ecological impact.

It is our intention that where necessary, the agricultural use of the campus lands will be compatible with other existing and proposed land uses and ultimately will enhance the overall educational value of the campus landscape. The UBC Farm must be a cost-recovery operation. In addition, the management of the UBC Farm must be sensitive to the biophysical characteristics of the UBC land base.

[1] Excerpt from David Orr’s remarks at the groundbreaking ceremony of the Adam Joseph Lewis Center for Environmental Studies, Oberlin College, Sept. 25, 1998.

B. GUIDING PRINCIPLES

Agricultural use and development of the campus lands would be guided by the following principles:

- **Involvement** of students in volunteer, internship, work-study and summer-work capacities to foster opportunities to develop leadership through education;
- **Respect** for the campus landscape systems and an understanding of the ecological principles which underlie their structure and function;
- **Engagement** in the campus-wide CCP process and support for the principles in *A Legacy and a Promise*;
- **Connection** to various "communities" for assistance and support for ideas and implementation;
- **Connection** to curriculum and learning outcomes that provide a well-rounded education;
- **Coherence** with Faculty core values; and
- **Design** of a self-sustaining, managed farm operation.

C. PARTNERSHIPS

A number of "partners" are important to the UBC Farm idea. They include:

- The various unions on campus (especially CUPE 116);
- The Faculty of Forestry;
- Departments of Zoology and Botany in the Faculty of Science;
- Biological and Chemical Engineering in the Faculty of Applied Sciences;
- The Institute of Resources and Environment and the Sustainable Development Research Institute in the Faculty of Graduate Studies;
- The UBC School of Architecture in the Faculty of Applied Science;
- The UBC Landscape Architecture, Agroecology, and Food, Nutrition and Health Programs in the Faculty of Agricultural Sciences;
- The UBC School of Community and Regional Planning in the Faculty of Graduate Studies;
- Animal Care (VP Research) ;
- Campus Planning and Development; and
- Plant Operations.

Other potential partners include the GVRD, the UBC AMS, the Graduate Student Society, the UBC Food Co-op, NGOs like City Farmer and Farm-Folk/City-Folk, industry partners such as West Coast Seeds, and representatives from the local community. This document has been circulated to these partners, some of whom have participated in the discussion of the UBC Farm proposal.

D. RATIONALE

UBC Planning Principles

The document, *A Legacy and a Promise: Physical Planning at UBC* sets out clear guidance for the physical development of the campus. The vision for UBC Farm responds to these principles generally, but specifically addresses the following five principles.

- ***The University City:*** As a society, we are beginning to see the need for coherence and collaboration between urban and rural. The growing community at UBC has the opportunity to explore the rich possibilities of linking urban living, working and studying with specific and complementary activities on the land.
- ***A Place of Image and Character:*** The UBC Farm is definitely imageable. It will help define specific neighbourhoods on the campus as having a productive, co-operative, and integrative character.
- ***A Place of Many Uses and Activities:*** The UBC Farm involves working landscapes – a whole mixture of uses and opportunities: places to study, involvement in working the land; management of an enterprise, beautiful retreats for reflection, and places to connect community and university within our bioregion.
- ***System of Open Spaces, Greenways, Connecting Spaces and Links:*** The UBC Farm is yet another program idea for our campus open spaces. The time has come to expand our societal ideas and values about what urban open space means to us as a community. The UBC Farm provides us with an extraordinary opportunity to do so.
- ***Global Leadership:*** The UBC Farm is an opportunity for UBC and for the Faculty to turn talk to action; experiential learning is more than a buzzword as we link our problem-based education model to real world research and learning. The ability to step outside of the formal classroom and be *in* The UBC Farm is a huge selling point as we reach out to our students who are desperate for a sustainable agriculture experience and education.

UBC TREK 2000 and Faculty Core Values

It is important that The UBC Farm idea is coherent with *TREK 2000* and with the Faculty of Agricultural Sciences' *Core Values*. In particular, the UBC Farm vision embraces the *TREK 2000* ideas of experiential and interactive learner-centred environments. We want to create some easily accessible opportunities for our students to bridge theory and practice, both on and off-campus through full-scale working farm sites.

At a variety of scales, the Faculty of Agricultural Sciences values and promotes the sustainability of natural systems in all our activities. This includes:

- The protection of global resources with an emphasis on the care and conservation of land (meaning soil, water and air) including animal and plant genetic resources and biodiversity;
- The necessity of a safe, nutritious and adequate food supply;
- The determinants of health - clean air, water and soil;
- Human capital; and
- Issues of social and economic justice and human rights.

In addition, all activities of the Faculty aim for excellence; over time the Faculty must be able to move with changing contexts, being both flexible and responsive in its evolution.

E. GOALS AND OBJECTIVES

The goals and objectives of the UBC Farm are as follows.

Education

- ***Applied Learning:*** Provide opportunities for research and experiential learning for students. This requires that we maintain the capability of growing plants and keeping animals within a short walking distance of the classroom.
- ***Enterprise Management:*** Involve students in the management of the UBC Farm enterprise to provide opportunities for actual experience in helping to make decisions while realising the consequences. The Farm can provide a laboratory for learning small business management skills and will aid in the understanding of the problems and opportunities encountered by ranchers, farmers and by our own graduates as they manage their own enterprises.
- ***Regional/Extra-regional Ethnobotany*:** Pursue opportunities to recapture and provide hands-on experiential learning of regional botanical knowledge through collaborative research and demonstration with First Nations and other ethnic groups.
- ***Sustainable Land Management:*** Demonstrate regenerative land management techniques. Active student participation in the management of soils and vegetation will offer invaluable experience in land stewardship, including soil conservation, permaculture principles and enhancement of wildlife habitat.

Research

- ***General:*** Conduct research on the various ecological, socio-economic, nutritional, policy-related and environmental dimensions of agriculture, forestry and alternative food systems.
- ***Specific:*** Set up, within a working urban farm, experimental plots where various alternative technologies of crop management (e.g. biological pest control, organic soil management, intercropping designs, raised beds, biodynamic farming techniques and permaculture, agroforestry, etc.) are researched for optimal yields, sustainability, economic viability, and land/labour productivity.

Extension

- ***Urban Agriculture:*** Capitalise on our proximity to the heavily populated upland areas of Greater Vancouver to which we can both demonstrate innovative practices for sustainable management of urban landscapes and to help increase the agricultural literacy of urban people through providing demonstrations of model food production systems.
- ***Enhancement of Campus Landscapes:*** Broaden the use and management of the UBC campus landscape to support a number of productive programs. For example the UBC Farmlands can play important roles in the management of surface water on the south end of campus and diversion of organic materials from the waste stream via recycling and land application while producing food and enhancing biodiversity. In addition, agricultural lands offer possibilities for recreation that are consistent with the needs of the increasing resident population of Point Grey.
- ***Biodiversity:*** Work to enhance biodiversity on-campus. Following the principles of agroecology, our campus lands, buildings and human resources will be used to demonstrate the importance of plant and animal genetic diversity.

- ***Food Production:*** We have the capacity to produce significant quantities of healthy food that can be consumed by campus residents, UBC students, employees, local community members and ethnic groups. Marketing may occur through a mix of channels including the local food coop, subscription farming, speciality crop contracts with local restaurants, a "roadside" stand, a Saturday Farmer's Market or through UBC Food Services. Any income over capital expenses should be used to pay for students' labour or fund student educational activities.
- ***Collaboration and Exchange*:** The UBC Farm has excellent potential for collaborative research and faculty and student exchange with similar education and research institutions within Canada as well as internationally. This could include, but is not limited to, student summer internships for credit and connection to the Centre for Human Settlements.

F. THE ACADEMIC IMPERATIVE

Given the importance of UBC's academic mandate, we have identified a number of learning outcomes that would be addressed directly by the UBC Farm. Students, faculty researchers, visitors and community members that connect with the Farm will be exposed to a number of learning issues. As a consequence of this exposure they should be able to do at least one of the following:

- **Define, discuss and advocate/defend** the application of ecological principles to agricultural and forest ecosystems;
- **Describe and identify** interrelationships between agricultural and forest systems and other ecosystems and land uses;
- **Differentiate and assess** conventional and alternative agricultural/forest production systems and examine their relationships to local communities and to the global economy;
- **Assess** the sustainability of existing agricultural/forest systems, formulate approaches for improvement and design of ecologically, economically, and socially sustainable systems and agricultural resource base regeneration;
- **Analyse** whole farm systems using an inclusive, genuinely dynamic interdisciplinary approach;
- **Evaluate** available information critically and holistically to prevent, or minimise problems associated with a particular agricultural system (the preventative vs. curative approach);
- **Identify** the potential consequences of adopting new technology and assessing the applicability of appropriate technology;
- **Identify and appraise** the social impacts of various approaches to food production;
- **Recognise and value** diversity both on the farm and in the community;
- **Organise and communicate** ideas and opinions clearly and effectively;
- **Interact** with others in a respectful, receptive and non-hierarchical manner, valuing wisdom about agroecosystems wherever it is found;
- **Appreciate** the value of "hands on" experience and help re-establish our dynamic, interdependent relationship with the earth and remedy the distance between ourselves and the food we eat;
- **Foster** technological innovation based on ecological principles; and,
- **Demonstrate** in-depth knowledge in one or more components of agroecosystems, e.g. animals (limited on-campus), plants, soils, economics/management.

G. SUPPORTING PRECEDENTS

There are numerous North American examples of post-secondary institutions that have successfully integrated sustainable agricultural systems on or adjacent to their campuses. Descriptions of three particularly relevant facilities are included in the Appendix. It is worthwhile noting that all three of these institutions enjoy international attention and interest as a direct result of the incorporation of these sustainable farm operations. At a more local level we believe that the success which the UBC Botanical Garden has achieved is a strong indicator of the potential public interest an on-campus UBC Farm enterprise might realise.

III. PROGRAMMATIC DEVELOPMENT

A. ISSUES AND OPPORTUNITIES

There are a number of hurdles to overcome before we are able to realise the idea of the UBC Farm. For the purposes of this document we will simply list them, restricting our comments to the discussion of how they might be seen as opportunities.

Issues

- The effect of the OCP and CCP plans on the areas currently managed by the Faculties of Agricultural Sciences, Forest Sciences and Science, and UBC Plant Operations.
- The development of new partnerships with UBC Plant Operations in terms of the proposed use and management of campus lands by students, faculty, staff and community members.
- The availability of required resources to successfully initiate, operate and administer the UBC Farm enterprise.

Opportunities

The interests outlined in the OCP and CCP documents can be accomplished while preserving and establishing the UBC Farm on campus. The Farm can be integrated into the fabric of existing and proposed on-campus developments in a manner that respects the existing ecology, improves educational opportunities, and pays over the long-term. The Farm can also provide international leadership in the areas of education, sustainable development and the design and use of green infrastructure while enhancing the beauty of the campus. There is a tremendous opportunity to explore and demonstrate how multi-functional, productive landscapes can be successfully integrated into urban situations. With significant portions of on-campus agricultural and forested lands UBC is in a very good position to establish what could become the internationally recognised UBC Farm enterprise.

While the current management strategy of campus land base precludes the involvement of the UBC community we believe that there is an opportunity to explore how this involvement might be realised by involving and eliciting the support of Plant Operations. There are a number of possible solutions to this situation, including but not limited to:

- The identification and designation of "learning areas" that become the responsibility of the UBC community;
- The negotiation of operational protocols with Plant Operations that describe and designate responsibilities; and
- The inclusion of Plant Operations staff in the administration of learning outcomes associated with specific landscapes, which could provide for supervision, teaching and tutoring opportunities.

We see this as a collaborative effort and are very interested in exploring how the notion of the campus as laboratory, as described in *TREK 2000*, is articulated on the ground.

In these times of fiscal restraint and shrinking budgets, funding is a major concern. We intend to meet this challenge in a number of ways that include:

- **Encourage Incremental Growth:** Developing the UBC Farm incrementally so that the necessary support mechanisms and resources are firmly established and allow for the gradual integration of the Farm into the fabric of the campus and the supporting community.
- **Secure Alternative Funding Sources:** Identifying a number of alternative sources of seed money that would allow the initiation of the UBC Farm enterprise. It is necessary to achieve a level of self-sufficiency, allowing us to eliminate or greatly reduce our reliance on external funding sources as the Farm develops.
- **Utilise Available Resources:** Maximising the use of existing on-site resources in a manner that is sustainable and supports our operating principles. This may include: (a) using available and interested students, staff, faculty and community members for the day-to-day management and operation of the farm; (b) creating, re-using and incorporating existing facilities in a manner that costs the least and provides most; and (c) utilising on-site materials for fuel, building, soil building, and food and feed production.
- **Incorporate Multifunctional Programs:** Following the maxim: "nothing should do just one thing". Much like a natural system, the Farm should achieve a level of stability through the incorporation and layering of a variety of supporting programmatic elements. In the past, campus developments have utilised restricted, single-use programs and facilities, which as a consequence tended to be inflexible and unable to respond to change. We are interested in establishing programs and infrastructure that have staying power because of their flexibility.
- **Minimise Built Investment:** Investing in the land in a manner that enhances the productivity and ecology of the soils, instead of investing in built infrastructure. Many past developments required massive investments into built facilities that eventually became outdated and in some cases unusable. The development of a sustainable farm system requires minimising investments into built infrastructure. As our interests are to improve the sustainability of the Farm the result should be an investment in the land not buildings.

B. OPERATING PRINCIPLES

There will be a requirement for guidance and assessment during the development and operation of the Farm. Consequently, it may be useful to develop a number of operating principles or criteria that can be used to evaluate the development and operation of specific

projects and of the farm in general. The six principles that have been drafted for the purposes of this document may eventually be used to express our attitude toward the stewardship of the UBC Farm's land and eventually extended to the overall campus landscape.

- ***Ecology:*** This is the first and most important principle. All land uses must be ecologically sustainable in the broadest and narrowest sense of the term. What we do on the land should support and enhance the integrity of the biophysical systems. Our farm practices should protect and enhance the overall biological diversity, health and integrity of the local ecosystems. This principle speaks of appropriateness and regeneration.
- ***Education:*** Next to ecology this is probably the most crucial principle. This is what sets us apart from most other farm operations. As a university it is our guiding mandate. Applied learning or learning by doing should be the primary education method. This supports the notion of the "campus as laboratory" as well as the Faculty's utilisation of problem-based learning as a teaching model.
- ***Economy:*** This is a necessary component of any sustainable operation and must be practised in a manner that upholds the long-term health of the farm ecosystems. As Brian Donahue states in Reclaiming the Commons, " To simply proceed in a manner that costs least and pays most would inexorably transform us into what we set out to oppose".[2] Cost recovery is important and it will only happen completely if we approach the land with an ethic and policy of regenerative economics. This will be challenging and may demand creative marketing strategies.
- ***Equity:*** This often-overlooked principle expresses the way in which the affairs of the Farm should be conducted. Fairness and respect will be incorporated into all aspects of the farm operation, from the way we treat each other and our supporting community, to the way we treat the land and its supporting biotic community.
- ***(A)esthetics*****:** This principle should naturally result from getting the other principles right. In the words of Aldo Leopold, "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." Beauty or aesthetics suggests a "rightness" or a completeness that is difficult to describe or assess quantitatively.
- ***Exemplarity:*** If the farm is managed in an ecological, economical, educational, equitable and aesthetically considerate manner it will be exemplary. The UBC Farm can demonstrate how sustainable agriculture systems can be successfully integrated into the fabric of urban/academic communities in a manner that facilitates ecologically supportive, interdisciplinary, applied learning experiences while providing green infrastructure that produces food, cleans the air, treats wastes, and supports wildlife.

C. PROPOSED PROGRAMS

The Faculty of Agricultural Sciences is committed to increasing our level of stewardship of The UBC Farm lands in collaboration with other stake-holders, such as the Faculties of Forestry and Science. The guidance of *TREK 2000* places even more importance on experiential learning and the connection between research and teaching in our Faculty. The UBC Farm provides this opportunity.

[2] Donahue, Brian. Reclaiming the Commons: Community Farms and Forests in a New England Town, Yale University Press, New Haven, Conn. 1999.

In terms of the medium and long-term vision for UBC Farm, Totem Field and the UBC South Campus Farm lands are the most critical. Through developing this working document, we hope to engage in shaping the UBC Comprehensive Community Plan. The UBC Farm idea has many aspects that can contribute to our new community at UBC.

D. COMPONENTS OF THE UBC FARM

The UBC Farm program describes the needs, activities, and qualities that are required within each component. The program also directs the design and planning processes within each component. It should be creative, detailed and flexible to future evolution. This section is included as a “beginning” to indicate the potential future for The UBC Farm.

The MacMillan Precent

Given the connection of this land area to the MacMillan Building and its strategic location on Main Mall there is an interest in making improvements so that it better reflects the Faculty of Agricultural Sciences’ transformed curriculum. Our interest is to redesign the MacMillan landscape or precinct so that it acts as a on-campus "storefront", providing an immediate landscape for "hands-on" teaching and learning opportunities for both students and faculty as well as a visible expression of the Faculty's curricula. The situation, its proximity to development and its size suggest that this landscape promote a highly urban agriculture.

Any investigations about how this landscape might be redesigned will include the development and expression of how agriculture might be better incorporated within the fabric of an existing urban landscape that occupies a strong pedagogical and social position. Particular attention will be given to the following areas:

- Accomplishment of this proposal within the current management framework provided by Plant Operations;
- Maintenance of the landscape during periods of reduced student activity (summer) and poor plant growth (winter);
- The development of specific operating principles which might include the prohibition of power tools to respect the quiet surroundings of a place of study, adherence to organic gardening practices and the application of a democratic design and management process; and,
- Contribution to the Millennium Plaza in a manner that connects Forestry and Agricultural Sciences.

Specific projects that have been identified for this area include:

- The development of a demonstration/community garden for the use of Faculty, students, researchers, the UBC Food Coop and residents of Thunderbird;
- Assessment and restoration of the old orchard to enhance onsite fruit and nut production; and,
- Modification of the MacMillan courtyard and Main Mall frontage to improve its use and aesthetic nature, reduce erosion and debris movement and eliminate winter water retention problems.

Totem Field

Totem Field is a highly visible agricultural land base with extremely rich, productive soils located within a 10-minute walk of the main campus. It currently provides an opportunity to

conceptually explore how a working research-oriented agricultural landscape can be integrated within the fabric of the adjacent University community. The site's proximity to the UBC Botanical Garden makes it an ideal location for research and demonstration on appropriate horticultural and soil management practices for urban agriculture in Greater Vancouver. There is also a tremendous opportunity to connect with the proposed West Mall residential developments.

Activities associated with this site should have a high educational content while creating a visually appealing landscape. Existing research and demonstration plots should be continued and the soil improvement practices enhanced via composting of residuals from the campus waste stream. There is interest in accommodating and possibly showcasing livestock within an organic management regime.

Specific projects that have been identified for this area include:

- A detailed site analysis and design investigation to develop an understanding of how community development and participation might be successfully integrated within an intensive, research-orientated agricultural landscape;
- Research and demonstration of locally appropriate fruits and vegetables;
- Hedgerow/grass margin replacement of the chain link fence;
- Integration of a demonstration apiary to enhance crop pollination and produce honey;
- Urban soil and water conservation practices;
- Biosolids demonstration; and
- Wildlife habitat enhancement.

Ongoing consideration will be given to the possible relocation of the Botanical Garden Nursery from South Campus to Totem Field.

UBC Botanical Garden

The current mission of the UBC Botanical Garden and Centre for Horticulture Research and Education is to:

- Curate a fully-documented internationally-renowned collection of temperate plants;
- Provide an interdisciplinary focal point in British Columbia for basic and applied horticulture research;
- Develop strong research and education programs focussed on the conservation and utilisation of rare and endangered plant species, and the ecosystems that sustain them;
- Promote sustainable horticulture through research, educational programs, community outreach, and demonstration projects; and
- Support the delivery of an undergraduate specialization in Horticulture in partnership with Kwantlen University College.

Currently, a business plan framework summary is being developed for the UBC Botanical Garden and Centre for Horticulture. There are 10 action items, which require completion before the Business Plan will be complete. Action Item 9 addresses the Physical Program and Plan for the Botanical Garden and Centre for Horticulture; this product should be complete within the next year and can be integrated into the UBC Farm idea.

The South Campus Farm

The South Campus Farm is a 10-minute bicycle ride from the main campus. Located near the south end of Wesbrook Mall in an area that is planned for development, this landscape provides an opportunity to explore the idea of incorporating a working farm within a proposed community development. As stated previously the South Campus area provides a unique opportunity to integrate a whole farm system - a farm operation that includes crop, animal, forest, and wetland elements - into a new residential development.

Our interests include the need to recover costs, provide experiential learning for students, faculty, staff and community members, recycle organic materials from the UBC Campus waste stream, produce organically/sustainably certified products and enhance the visual landscape.

The Faculty of Agricultural Sciences with its Landscape Architecture program, coupled with the Faculties of Forest Sciences and Science, is uniquely capable to integrate the South Campus working landscape with the future development of the campus. This integration can occur specifically through South Campus' connection to main campus and housing areas via the planned Greenway. Close proximity to bus lines also ensures that the UBC Farm, along with the MacMillan Precinct and Totem Field, will have strong potential for education of urban school children and adults in the surrounding community in the principles and practices of sustainable urban agriculture. The opportunity for students, with the advice of Faculty, staff and friends of the Faculty of Agriculture Sciences, to operate a farm enterprise will offer a unique opportunity for integrative, interdisciplinary learning. It will offer some insights into the issues facing small farms in general and more specifically, agriculture in an urban area.

Livestock Production: At present we have a complement of buildings that have some utility. It may be appropriate to evolve our current livestock operation into a smaller scale operation that is in agreement with our transformed educational goals and can be sustainably maintained on the campus land base. It is proposed that the campus livestock component be integrated with the production of feed and food crops in the context of a working "urban farm" utilising the existing fields located south of South Campus Road. It is expected that more intensive livestock and animal facilities currently used by Animal Care, Zoology, Agricultural Sciences and the Faculty of Medicine would be better, more securely situated on main campus in closer proximity to their users. The present South Campus animal facilities could be used in the interim but would be phased out as development in this area proceeds. The newly designed and situated South Campus Farm will have minimal permanent animal housing requirements, as the focus will be an innovative, naturally sustainable animal housing designed to be incorporated into the landscape. There is also interest in considering and enhancing wildlife habitat associated with the South Campus Farm.

Cultivation: We can benefit from the past investment of money and labour spent by our Faculty on clearing, rock-picking, subsurface drainage and irrigation equipment. The field areas associated with the South Campus Farm have a south aspect and should provide early planting and production of potatoes and cool season vegetables. A wide range of fruit crops is feasible in various fields on the site. Existing irrigation infrastructure will allow midsummer production of most warm season crops. The productivity of light textured soils on the site will be facilitated by maintaining forages in the crop rotations and, hence the advantage of integrating ruminant livestock into the system. Closer co-operation should be sought with other users including our

own Botanical Garden, Faculty of Forestry, Departments of Botany and Zoology, the UBC Animal Care Facility, and Plant Operations.

Forestry: The UBC Farm will be an integral part of a new agroforestry course to be offered jointly between the Faculties of Agricultural Sciences and Forestry beginning in the fall of 2000. The Farm offers several opportunities for the type of hands-on learning that will be applied for this course. As part of the course requirements, students will develop proposals for agroforestry systems that could be developed for research and demonstration purposes. The best of these proposals will be adopted for implementation on the Farm in 2001. In addition to enhancing the learning experience of students, the agroforestry initiatives would demonstrate the potential for small-scale forestry projects to provide ecologically and economically sustainable options for landowners.

Specific projects that have been identified for the South Campus Farm include:

- The development of an organic market garden to supply the Food Coop and Food Services. Produce may also be marketed under a *UBC Farm* organic label;
- Development of caretaker housing to provide on-site student and researcher housing and security;
- Designation, development and maintenance of individual and group test plots for research projects;
- Creation of a dynamic experiential learning space for the UBC community;
- Integration of a livestock to complement cultivation areas and explore how productive animals might be re-incorporated into the urban landscape;
- Designation and management of a wood lot that supports the research and experiential learning of sustainable urban forestry practices. Wood collections could involve horse-logging, further integrating woodlot management into the agroforestry program on the Farm; and,
- Creation of a dynamic and interactive public interface, which may include the development of sustainable agriculture and forestry demonstration projects.

IV. GOVERNANCE

To this date, there have been only minimal discussions regarding the governance and day-to-day management of the UBC Farm enterprise. Our expectation is that the UBC Farm will be managed as a joint partnership among the various participating Faculties and units. Membership may be extended to allow for community representation.

It is expected that the governing body will take the form of a UBC Farm Working Group reporting to the Dean of the Faculty of Agricultural Sciences, perhaps in consultation with other participating Deans. The role and responsibility of the Board is expected to include overseeing the implementation of objectives and activities of the UBC Farm enterprise.

Representation to the UBC Farm Working Group will be the responsibility of each member Faculty and unit. In the interests of efficiency it is anticipated that units will identify one representative. Student representation, seen as critical, will also be restricted to one representative from each Faculty. The Farm Working Group will designate a Chair who will have responsibilities for co-ordinating and managing the Group's activities.

V. FUNDING

Sustainable urban agriculture and forestry programs and practices are an emerging world trend that is increasingly attracting interest. With this interest there is an increasing opportunity and potential for funding.

Funding sources have been identified/contacted that might provide seed monies necessary to initiate the anticipated projects for this year. They include:

- The UBC Student Environment Centre
- Walter Gage Memorial Fund
- AMS Innovative Projects Fund
- Human Resources Development Canada
- Youth Community Action Grants
- Real Estate Foundation of BC
- Teaching and Learning Enhancement Fund
- Vancity's Envirofund
- Canada Trust's Friends of the Environment Fund
- Ministry of the Environment's Environmental Youth Team Program
- Investment Agriculture
- Various foundations that support sustainable agriculture

These funding sources would not provide enough money to sustain the UBC Farm enterprise. Potential longer-term sources of revenue would need to be secured to ensure the economic sustainability of the Farm. These funds would help with the development and on-going support for core programs, facility and site restoration, maintenance and improvement. We have identified a number of potential revenue sources. They include:

- Funded research initiatives focusing on sustainable agriculture/forestry, urban agriculture/forestry, organic practices, agroecology, agroforestry, and policy development;
- Direct marketing strategies through the UBC Food Coop, the anticipated Farmer's Market in the B Lot developments, a farm stand, and a subscription or share-based community agriculture program;
- A Student Internship Programme;
- Workshops and courses;
- A Friends of the Farm programme;
- Government and foundation grants;
- Farm tours; and
- Donations.

We expect to collaborate and form creative partnerships with individuals and groups, where necessary, in an effort to secure previously inaccessible funding sources.

VI. EXPECTED OUTCOMES

There are a number of processes underway which inform the evolution of short, medium and long-term options for the UBC Farm idea. Through our involvement, we hope to shape the current evolution of the Comprehensive Community Plan. The Faculty of Agricultural Sciences is currently involved in a business planning and eventually a physical planning process for the Botanical Garden and Centre for Horticulture (BGCH). The spring of 2000 will see the new curriculum in the Senate approval process and the continuing evolution of ther Faculty Academic Plan.

The UBC Farm concept can play an important role in demonstrating the connection between the academic mission of UBC and its physical context. The campus should be a learning laboratory. At the same time, new models are necessary for funding and providing student experience. The UBC Farm idea is taking its lead from the Dental Clinic initiative of the Faculty of Dentistry where a mixed-use building is providing the synergies amongst a learning facility (the clinic), necessary retail and housing.

VII. GETTING STARTED

A. PROJECTS PROPOSED FOR 2000

Projects for Spring-Summer 2000 implementation have been identified for the MacMillan, Totem and South Campus Farm areas.

MacMillan Precinct

Landscape architecture students are in the process of redesigning the land base around the MacMillan Building that visibly expresses the Faculty's transformed curricula and provides an immediate landscape for applied teaching and learning opportunities that connects across the Millennium Plaza to the Faculty of Forest Sciences. We hope to begin the implementation of a few of the ideas generated by these students particularly in the area associated with the UBC Food Coop Facility. Assessment of the old orchard and preliminary improvements to the salvageable trees will start in early March.

Totem Field

Our current focus will be on collecting information to determine how Totem Field will connect with the students, residents, faculty, UBC Food Coop, and other interested parties. We recognise that Totem Field is a crucial component for UBC's open space plan. Signage along with other logistics and particulars will also be proposed.

South Campus Farm

The goal this summer is to initiate a clean up inventory and assessment of the South Campus facilities to determine our material assets and make needed spaces usable. Work will include the identification and designation of areas to receive organic certification. The focus of this project will be the Farm areas located south of South Campus Road.

VIII. CONCLUSION

The re-invention of the UBC Farm is a logical extension of the significant transformation of the Faculty of Agricultural Sciences at UBC. Reaching out to other academic and support partners, it will be possible for us to re-define the nature of our curriculum and our learning opportunities in the Faculty.

We are a unique Faculty amongst agricultural Faculties in Canada. We sit not amongst fields of wheat or canola, nor in the food processing mecca of central Canada. Instead, we find ourselves on Point Grey, next to an ever-growing urban metropolis in a Province that grows 80% of its food on the same 80% of the land where most of the people live. This means that our challenges are unique and our responses to them must be creative and far-reaching.

The UBC Farm idea is a unique response to our strengths and is part of building a strong learning base for our future.

IX. APPENDIX

UBC FARM PROJECT PARTICIPANTS

Faculty of Agricultural Sciences

Faculty and Staff

Moura Quayle, Dean
Jim Thompson, Associate Dean, Research
Art Bomke, Professor, Agroecology
Kim Cheng, Professor, Agroecology
Brian Holl, Professor, Agroecology
Sean Trehearne, Technician, Totem Field
Ted Cathcart, Manager, UBC South Campus Farm (Ag. Sci. component)
Cathleen Nichols, Community Programs Coordinator

Students

Megan Atwood, Representative, Agricultural Sciences Undergraduate Society
Michelle Neslon, Representative, Agricultural Sciences Undergraduate Society
Howard Poon, Representative, Agricultural Sciences Undergraduate Society & Senator
Ben Willing, President, Agricultural Sciences Undergraduate Society
Derek Masselink, MLA Candidate*

Institute for Resources and Environment

Tony Brunetti, PhD. Candidate*

UBC Botanical Garden

Douglas Justice, Research Scientist and Curator of Collections

Faculty of Forestry

John McLean, Acting Dean, Faculty of Forestry
Cindy Prescott, Associate Professor, Agroforestry
John Worrall, Professor, Forest Sciences

UBC Food Coop

Lara Brown, Undergraduate Student, Forest Sciences
Ondrea Rogers, Undergraduate Student, Agricultural Sciences

Faculty of Science

Copies sent to:
Maria Klawe, Dean of Science
Carl Douglas, Head, Department of Botany
Jim Berger, Head, Department of Zoology

* Special thanks to Derek and Tony for their work on creating and editing this document.

The Center for Agroecology and Sustainable Food Systems
UC Santa Cruz, Santa Cruz, California

The Center for Agroecology and Sustainable Food Systems (the Center) is a research and education group at the University of California, Santa Cruz. The Center's goal is to research, develop, and advance sustainable food and agricultural systems which are environmentally sound, economically viable, socially responsible, non-exploitative, and which serve as a foundation for future generations. The Center's research and education efforts seek to increase understanding of the social, economic, political and ethical foundations of agricultural sustainability; to establish the ecological and agronomic basis for sustainable production systems; and to demonstrate and facilitate the use of information critical to the adoption of these systems.

The heart of this internationally recognised research and education group is two on-campus facilities: the 25-acre Farm and the four-acre Alan Chadwick Garden. The Farm is the primary research facility and includes research plots, raised-bed gardens, row crops, orchards, a laboratory, and a solar greenhouse. Both sites are managed using organic production methods, and serve as research and training facilities for students, interns, staff, and faculty. Animals have not been incorporated into either the farm or garden systems but both facilities are open to the public and are major visitor attractions at the campus.

John T. Lyle Center for Regenerative Studies
California State Polytechnic University, Pomona, California

The John T. Lyle Center for Regenerative Studies (The Lyle Center) is an interdisciplinary university-based setting for education, demonstration and research in regenerative and sustainable systems. Students from any discipline at the Cal Poly campus can participate in courses. Currently, a community of 20 students resides on the site working with regenerative systems as part of their daily lives.

The comprehensive design of the 16-acre facility provides a living environment for faculty, students and visitors to study passive solar designed buildings, renewable energy capture, water recycling, nutrient cycling, food growing systems, aquaculture, native habitat and human communities.

The Lyle Center is dedicated to the education, demonstration and research of sustainable systems and technologies. These three objectives are interdependent and all contribute to the projects underway at the Center.

Beech Hill Farm
College of the Atlantic, Bar Harbour, Maine

Beech Hill Farm includes approximately five acres of diversified, certified organic farmland, several acres of heirloom apple trees, 65 acres of forest, a barn, farmhouse, farmstand, outbuildings, and greenhouses. Alumni donated the farm to College of the Atlantic (COA) in May of 1999. It quickly became an integral and highly valued facility of the college. COA is currently in the process of using this facility to preserve working local farmland and create a hands-on educational resource for students, farmers, and community members.

COA is committed to managing the Beech Hill Farm as a working, sustainable organic farm that provides fresh produce for the campus and continues to serve local customers through wholesale accounts and a retail farmstand. The college's students, staff, faculty, and farm managers work collaboratively to meet the farm's threefold goal of demonstrating local and sustainable food production, and good land management and providing applied education opportunities.