

General Procedures at the University of Vermont
Horticulture Research and Education Center and Catamount Educational Farm

The Horticultural Research and Education Center is one of the research/educational centers in the Plant and Animal Biology Facilities Department at the University of Vermont. This Department reports to the Dean's Office of the College of Agriculture and Life Sciences. Resources are shared with Miller Research Center as part of the Department of Plant and Animal Biofacilities.

The research centers have multiple functions. These Centers are able to operate smoothly together and often times compliment one another. This document outlines a level of support a researcher can expect to receive from the staff of the HREC, which in turn will aid in planning for research activities. Contracts will also be made out between the Center and researchers, which will identify equipment, material and labor needs as well as clarify duties of the researcher and those of the HREC staff.

The UVM HREC, as part of the Vermont Agriculture Experiment Station, serves as a facility to provide support for University Research, Teaching, Extension, and Outreach activities within the College of Agriculture and Life Sciences. In order for work to be conducted safely and efficiently at the HREC, workers must comply with general policies at the site.

Catamount Educational Farm operates as a program within the HREC to consolidate management, production, and sales of fruit and vegetables at the farm through a single channel to: improve year-to-year farm management; maintain produce, and soil quality across plots and years; develop a model farm system for use by UVM courses and programs; facilitate research; and close the UVM food systems loop by marketing produce through UVM channels. All Uses of the CEF plots must be coordinated with HREC Director Terence Bradshaw and CEF Production Manager Laura Williams.

This document and supporting information can be found on the UVM HREC website at:
<http://www.uvm.edu/~hortfarm/Documents/HRCpolicies.pdf>

USE POLICIES HAVE LIKELY CHANGED SINCE YOU LAST READ THIS!

It is your responsibility as PI/Instructor for your project to read, understand, and follow all policies at the HREC.

a Word document of the request form can be found at:
http://www.uvm.edu/~hortfarm/Documents/2014_HRC_UseRequestForm.doc

1. Plot allocation

Research and teaching support for the farms comes from General Fund, State, and Federal dollars that are allocated to further the missions of the University of Vermont and the College of Agriculture and Life Sciences. Research and teaching proposals for projects at the HREC must be received from CALS or other UVM faculty in accordance with their officially sponsored programs in their respective departments. Student, community, or affiliate-directed efforts will be entertained only with direct support and final oversight by UVM faculty. It is the responsibility of the faculty sponsor to see that conditions for use of the farm are satisfactorily met. Projects sponsored by non-faculty parties may be evaluated on a case-by-case basis but will receive lower priority than officially sponsored projects.

An HREC use review committee meets to discuss use proposals and advise farm staff on plot allocation. Final decisions on project support and allocation will lie with HREC management and CALS Deans office. Users must submit a plan of work to HREC Assistant Director Terry Bradshaw (tbradsha@uvm.edu) as soon as possible before work begins. ***For 2014 activity request forms must be submitted by March 7.***

All HREC users must submit an annual plan, even if there are no expected changes in HREC use from previous years. All projects must include a start and end date. Ongoing projects shall include a 'sunset provision' which describes plans, and funding if necessary, to return plots back to the original condition at the investigator's expense. Multi-year projects will be considered with a reasonable (3-5 year) timetable where renewal of support will be reevaluated. A use request will still need to be submitted annually for multi-year projects.

Please use the HREC maps, which can be found at:
<http://www.uvm.edu/~hortfarm/?Page=HRECplotmaps.html> to assist with plot allocation requests. With proper planning it is very rare that we are unable to accommodate requests for normal levels of support. In order to facilitate smooth operations when conflicts do arise, we abide by the following priority list for labor, equipment and resources.

- a. Research
- b. Teaching
- c. Extension
- d. Demonstration and Public Relations

2. Facility Access

The HREC is a closed-gate facility, meaning that by default the site is not open to the public, however the front gate is generally left open when staffed and no spray re-entry periods exist. The gate access code is to be given out to workers with discretion. We understand the need to provide access to the facility to colleagues. Should the gate code become compromised, it will be changed and users notified immediately.

Upon entering facility, workers must check in at main office, review pesticide entry periods, and sign in. The last person leaving at end of day must shut the gate if open. If someone without the code needs to exit, code 9999 can be freely given out (this allows for exit only).

Access to the farm from the Spear Street/Deerfield Drive entrance is provided primarily to allow for ease of equipment transport between the farms. The back gate is not a primary entrance, and the roadway will not be maintained as such. When sending persons to the farm, especially non-primary users, they should be directed to the front gate off of Green Mountain Drive/Shelburne Road. If you do open the back gate, you must close it behind you.

3. Management Structure

- a. HREC Director is Terry Bradshaw (tbradsha@uvm.edu, cell 922-2591). This is the primary contact for the farm.
- b. Operations Manager Andy Bessette (abessett@uvm.edu)
- c. CEF Production Manager Laura Williams (laura.williams@uvm.edu)
- d. Associate Director, Vermont Agricultural Experiment Station is Josie Davis (Josie.Davis@uvm.edu , 656-1032).
- e. Chair of Plant and Soil Science Department is Deborah Neher (dneher@uvm.edu, 656-0474).
- f. HREC users should plan on providing their own technical support staff for projects, except for conditions outlined below. Equipment repairs previously done by farm staff will need to be arranged through another avenue.
- g. Management staff can revoke permissions for equipment use or facility access as they see necessary.

4. User Orientation and Training

The UVM Department of Risk Management and Safety works in partnership with individuals and groups both on and off-campus to assess the risks in these types of settings so that work may be done using proper controls and best safety practices. Farms, such as the UVM's Miller Complex, Horticulture Research Center, Proctor Maple Research Laboratory and the Morgan Horse Farm come with unique safety hazards unlike those in a typical wet lab situation. However, all of these locations fall under UVM's [Laboratory Health & Safety Policy](http://www.uvm.edu/safety/policy) (<http://www.uvm.edu/safety/policy>) and must adhere to the guidelines and requirements of UVM's Laboratory Safety Program.

All farm users are required to undergo training in the areas appropriate to their work needs. HREC maintains records for users who have completed general training in:

- Facility orientation (outlined in this document)
- Tractor safety
- Agrichemical safety

UVM Risk Management and Safety also conducts several online safety trainings including: chemical safety in the laboratory; hand and power tool safety; disposable respirator use; fire safety, and working at heights. Additional training opportunities will be developed and offered in the future. All on-line trainings are available at: <http://www.uvm.edu/safety/shop> , click on 'On-Line Quizzes' on the right side of the page.

It is the responsibility of each faculty user to inform HREC staff of the persons who will be working within their program at the farm to place them on the training list. Program faculty are also responsible for ensuring that their workers receive adequate training for their jobs. Terry Bradshaw, HREC Director, or Lee Diamond, Environmental Safety Coordinator, can assist faculty with determining the training needs of their workers.

Under no circumstances is a faculty or staff member or program worker allowed to use power equipment, vehicles, machinery, agrichemical, or hand tools without receiving training and that training documented by HREC or program managers.

5. Work hours

The general hours of operation for the HREC are 8:00-4:30, Monday through Friday. Given the need to complete tasks in a timely manner, off-hour work is permitted by workers who have access permission. However, no machinery (tractors, etc.) should be used off-hours unless a second person is present or express permission has been given by HREC management. Users of equipment must be trained and signed off as per the conditions below.

Persons working off-hours are encouraged to carry a cell phone, and any users of equipment *must* carry a phone on their person during operation.

6. Research support

The intent of HREC management is to allocate both labor and equipment resources as evenly as possible among researchers. In order to do this, a contract is to be drawn up in late winter or whenever appropriate which will outline responsibilities of the researcher and his or her support staff and the staff of the HREC. We are a resource of the College of Agriculture and Life Sciences and our duties include the support of several departments. Because our duties are potentially wide spread, it is important that monies for labor support of individual research projects be written into grant proposals.

The following is a list of what will be provided by the manager/staff of the HREC—all requests for research plots, equipment or labor assistance should be directed to the HREC Director or his designated agent:

- a. Overview of activities of groups and individuals using the HREC to maximize use of the land, equipment and resources.
- b. Responsible for overall welfare of the HREC and equipment, including those lands not being used for active research.
- c. Safety instruction of individuals using the facilities as mandated by law and UVM policy—includes pesticide Worker Protection Training and Tractor and Equipment Safety Training.
- d. Regulating individual's and group's use of facilities and equipment in order to provide equitable access to resources.

- e. To be available to help with research planning and as a general resource for the College and University.
- f. To provide scheduling of equipment and facilities.

Responsibilities of the researchers would include the following:

- a. Soil preparation of the plot area. This would include soil testing and addition of lime and fertilizer. A copy of any soil or plant material nutrient analysis collected on-site must be submitted to HREC Assistant Director.
- b. Planting, harvesting, weeding – labor needed to maintain research plots and collect data should be provided, or arrangements made with HREC Director well in advance to plan for staff allocation.
- c. Setting up irrigation within the research plots with assistance from HREC staff.
- d. Cleaning up the plot areas at the end of the research period/season and returning the area to its previous condition.
- e. Maintaining all work and common areas in a clean and acceptable condition.
- f. Submission of complete and accurate records of plot use and any inputs including agrichemicals and plant materials.

Dual responsibility between the HREC staff and researchers would be in the areas of application of pesticides and/or other materials which may be applied to both research plots and the general grounds of the HREC. This might also involve a general practice such as mowing grass in research area in conjunction with the general grounds. These mutual arrangements will be worked out each year when completing the annual research contracts.

7. Support fees

In order to maintain farm equipment and fund staff HREC staffing, the following fees will be implemented for the 2013 season. Alternative fees may be negotiated with HREC management contingent upon CALS approval for unique situations:

- a. Land use no charge
- b. Crop loss for research plots negotiable with HREC committee, cost of lost crop
- c. Irrigation access \$250 flat fee per acre per season
- d. Walk-in cooler \$25 per month / 10 sq feet (1 pallet)
- e. Walk-in dryer \$1 sq ft per month
- f. Manure from Miller \$25 per yard plus equipment
- g. Equipment and operator support (i.e. a person operating a tractor and implement for the end user) \$60 per hour
 - i. Miller McCormack tractor \$80 per hour, one hour minimum
 - ii. Technical support by HREC staff \$30 per hour
- h. Equipment use alone (contingent on training)
 - i. HREC Tractor and implement \$30 per hour
 - ii. BCS tractor \$15 per hour
 - iii. Specialized equipment \$ as determined

- iv. On-site HREC truck use \$6 per hour
- v. Mowers, trimmers, etc to maintain cleanliness of plots will not be charged for use.
- i. Greenhouse fees
 - i. Greenhouse technician \$34 per hour
 - ii. Greenhouse consultant \$50 per hour
 - iii. High tunnel \$0.29/sq ft/month
 - iv. West greenhouse \$0.29/sq ft/month
 - 1. iii and iv are for space only. Add-ons or labor will entail additional charges
 - v. East house \$4.33/sq ft/month
 - 1. East house includes benches, heating and cooling irrigation, fertigation, and pest control
- j. Orchard research management fee
 - i. In lieu of researchers purchasing materials and providing labor for their own orchard research support, PIs may opt to pay an orchard management fee of \$2500 per acre, per crop season to cover pruning, irrigation, fertilization, mowing, and spraying activities and materials. PIs may choose to perform these activities with their own technical staff, in that case, this fee may be waived or negotiated with CALS Dean's office and/or HREC management.
- k. CEF plots
 - i. Projects which will use vegetable or fruit plots in accordance with management plans developed by CEF Production Manager or HRC Director and which will not reduce marketable cropping or require additional labor/inputs from CEF (classes, non-destructive sampling, etc) will not be charged use fees. Those users will assume all personnel and other costs associated with their projects and will coordinate projects with CEF prior to starting them.

It is important for HREC users to plan for equipment needs and coordinate with HREC staff to ensure their availability. Equipment use must be tracked by the user and reported to HREC staff on a monthly basis.

8. Equipment use

SAFETY FIRST! Operators must be trained on each piece of equipment by farm staff, and a record kept on file that training was received and permission granted for use.

Specific equipment policies follow:

- a. Closed-toe shoes must be worn at all times when working with any equipment or tools. Bare feet are not allowed on the farm.
- b. Operators are expected to use safety glasses, earplugs, gloves, and any other safety equipment when using tools. There is a stock of ear plugs and safety glasses in the shop; gloves are the responsibility of the worker or their supervisor.
- c. Trucks

- i. PSS Ford Ranger is managed and maintained by the PSS department. Sign out is conducted through the PSS Resources Sharepoint page <https://sharepoint.uvm.edu/sites/pssresources/default.aspx>
 - ii. Vehicles are available on an as-needed, permission-first basis. Truck needs must be coordinated with HREC Director. A per diem fee of \$50 per day plus mileage will be charged for truck use for non-CEF projects. Scheduling of farm trucks must be done in advance with HREC or Miller Farm staff.
 - iii. **CEF truck use is intended for hauling materials, equipment, and produce on the farm. It is not intended for carrying students or workers on the farm, as that use ties up limited resources and leads to immature vehicle wear.**
 - iv. The Polaris Ranger utility vehicle is not part of the HREC fleet and is operated and maintained by the Grape and Apple program. *This vehicle is not available for use by other parties.*
 - v. All drivers must complete UVM Risk Management Van driving course, and submit certificate to HREC Assistant Director. Certificate must be on file at HREC before operation of vehicles is allowed.
- d. Tractors
- i. Only trained workers will be allowed to operate tractors. Training will be provided on an as-needed, per-equipment basis. Operators must be listed on the HREC trained users log located next to the key boxes in the shop before using motorized equipment.
 - ii. Operation of tractors requires that a second person be on-site.
 - iii. Other equipment is available on an as-needed, permission-first basis. Operators must be trained specifically on a new piece of equipment before operation.
 - iv. All standard safety rules apply when operating tractors.
- e. Welder and chainsaws
- i. Only specifically trained and expressly authorized persons may use HREC chainsaws or welding equipment.
- f. Petrofuels
- i. Gasoline and diesel are available at the farm for use in equipment. Under no circumstances should either fuel be used in personal or on-road vehicles. Fuel pumps are locked and use a different combination than others on the farm which specific users will be provided with on an as-needed basis.
 - ii. **KNOW YOUR FUEL.** Equipment at the farm uses diesel, standard gasoline, or two-cycle mixed gasoline. If there is any question as to which fuel is required for a particular piece of equipment, **STOP** and ask Terry or Andy.
 - iii. **NEVER** fuel a piece of equipment inside the shop area. All fueling should occur outdoors
 - iv. In the event of a fuel spill, contact and HREC employee immediately. If there is a significant spill, call 911 and refer to the South Burlington Fire Department.
 - v. Petrofuels are hazardous to inhale or absorb on your skin. In the event of fuel contact or inhalation, move to fresh air or wash the affected area immediately. Seek medical attention if you feel ill, nauseous, or the contacted area develops a rash or other symptoms of irritation.
- g. Irrigation

- i. Only specifically trained and authorized persons may operate any part of the irrigation system.
 - ii. You turn on, you turn off. Irrigation must not be left on when leaving the facility.
 - iii. Under no conditions should the overhead irrigation system be operated without express permission.
 - iv. All trickle irrigation users must sign in when turning on system. A clipboard is available in the trickle pumphouse for logging irrigation events. Records must include the date, name of person responsible, plots irrigated, time irrigation turned on, and time unit shut down. The door to the pumphouse must be left open when irrigation is running.
- h. Shop equipment
 - i. Closed-toe shoes must be worn when working in the shop.
 - ii. There is no eating in the shop area.
 - iii. Shop tools are available to workers as needed. All tools must be immediately returned to their proper storage space.
 - iv. Power tools are available only by express permission of HREC management. This includes *anything* with a power cord or requiring an air compressor.
 - v. Tools are not to leave the facility for any reason.
- i. Equipment breakdown
 - i. Any breakdowns should be reported to HREC personnel immediately. *Do not try to fix something yourself.* This includes jump starting vehicles in the field. If no one is around, turn the equipment off, remove the key, and leave it as is for HREC personnel to attend to. Inform HREC staff of the problem immediately.

9. Pesticides

It is vitally important that workers at the farm follow all required precautions for pesticide use at the facility. Only trained and licensed individuals may apply pesticides of any kind on HREC property. All applicators must have a valid Vermont Non-Commercial Pesticide Applicator's License on file. In addition, anyone who works in an area that has been treated within the past 30 days or that is expected to be treated in the coming season must receive Worker Protection (Pesticide) Training from HREC staff prior to working in the field.

All pesticide applications must be expressly approved by HREC Director prior to the spray event. Applicators must comply with pesticide label restrictions for application instructions, treated area entry and preharvest interval. All pesticide applications must be recorded and submitted immediately to HREC management. Two types of records are needed:

- a. Treated area information: Standard form filled out and posted at the central location in the front office of Blasberg building. Forms will be provided in that area. This document is required to comply with EPA Worker Protection Standards, and is used by all workers and visitors upon the grounds to determine what areas have been sprayed recently.
- b. General, detailed record submitted electronically to HREC management on a monthly basis. This record will be included in the facility pesticide use report sent to the state annually and

must include date and time of application, applicator responsible, plot sprayed, material trade name, active ingredient, EPA registration number, restricted entry interval, and weather during application, particularly wind speed and direction. A stock Excel spreadsheet will be available on the HREC website (<http://www.uvm.edu/~hortfarm>) before the onset of the growing season.

- c. All pesticides must be stored in the chemical shed as directed by HREC staff. Organic materials must be segregated in the middle bay (door 2).

10. General recordkeeping

Detailed records of all inputs to field plots must be submitted to HREC management on a monthly basis. Records should include plot name and location, activity performed, input applied, rate, and decision support. A stock Excel spreadsheet will be available on the HREC website (<http://www.uvm.edu/~hortfarm/>) before the onset of the growing season.

Plots in the 'Organic Zone' must comply with all NOFA-VT regulations regarding organic certification. The portion of the farm west of the main ponds and its associated outlet are included in this Organic Management Area. Any soil or plant tissue tests collected onsite must also be submitted by photocopy to HREC management.

11. Computer support

The HREC is serviced by (slow) high speed internet access with wireless service inside the Blasberg building. This service is not part of the UVM network so users who wish to access network service will need to run VPN software available from the UVM Software Archive (<http://www.uvm.edu/software>). Regular internet and email access is available via a standard 802.11g wireless card supplied by the user. This wireless connection is password protected, and the password will be provided to users as needed.

The HREC internet connection is bandwidth-limited, so excessive file downloading is not allowed. General browsing, email, and worker hours submission are okay.

12. Greenhouse

The greenhouse and overwintering structures, including associated outdoor nursery pads located at the HREC are managed by the UVM Greenhouse group headed by Colleen Armstrong (Colleen.Armstrong@uvm.edu). Requests for use of these facilities should be made to Colleen or her agents. All policies set forth by the greenhouse group apply within these structures. Efforts are underway to designate the primary HREC greenhouse as an organically managed facility.

13. Classroom scheduling

The Blasberg classroom is available for University groups including course lectures and labs, Extension meetings, and other events at no charge. Use of the classroom must be scheduled at least one week in advance (preferably earlier) with HREC management.

14. Accidents

Any injury must be immediately reported to HREC Director/Assistant Director.

A First Aid kit is located in the shop across from shop phone. If an injury is at all serious, go to the Emergency Room. Don't try to doctor a serious wound yourself. Emergency phone numbers are located above the phone in the front office. If you need help getting to a doctor's office, ask anyone at the farm for help. If no one is available, activate the blue light call box next to the north entrance of the Blasberg building, UVM police will respond. There is no two-way/voice capability with the box.

Within 72 hours of injury an incident report must be filed with HREC management. Forms are located on the first aid kit in the shop as well as next to the computer in the front office/bathroom area.

- a. *For UVM Students:* a Department of Risk Management [Incident Report](#) must be filed.
- b. *For UVM employees:* a "[First Report of Injury](#)" form must be filed.

15. Future versions of this policy document will supersede all previous versions.

Appendix A.

HREC Annual Request for Facility Use and Support

An editable Word document of this form can be found at:

http://www.uvm.edu/~hortfarm/Documents/2014_HRC_UseRequestForm.doc

University of Vermont

All users of the facility must complete a request for use and support agreement annually. This includes past traditional uses including collection maintenance.

An HREC use review committee meets regularly to discuss use proposals and advise farm staff on plot allocation. Final decisions on project support and allocation will lie with HREC management and CALS Deans office. Users must submit a plan of work to HREC Assistant Director Terry Bradshaw (tbradsha@uvm.edu) as soon as possible before work begins. ***For planned 2014 activities request forms must be submitted before March 7.*** All HREC users must submit an annual plan, even if there are no expected changes in HREC use from previous years. All projects must include a start and end date. Ongoing projects shall include a 'sunset provision' which describes efforts to be made to return plots back to the original condition at the investigator's expense. Multi-year projects will be considered with a reasonable (3-5 year) timetable where renewal of support will be reevaluated.

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Part A. Initial Request for Support:

1. Investigator's name:
2. Telephone number:
3. E-mail:
4. Department:
5. Default Chartstring:
6. Project Title:
7. Course Number:
8. Expected start date:
9. Expected end date:
10. Plot space requested:
(from HREC plot map)
11. A short description of the research/teaching needs which would include a general flow plan/dates of activities with areas of requested support.

Part B. HREC Contract (completed after review by HREC board and CALS Deans Office)

1. Date Request received
2. Description/flow of the Protocol with general dates of major activities
3. Equipment needs
4. Irrigation needs
5. Chemicals to be used
6. Plot needs
7. Recording needs
8. Labor support/responsibilities
9. Drying rack needs
10. Root cellar use
11. Cooler needs
12. Other
13. Comments

Part C. Summary

1. Actual start date
2. Actual end date
3. Summary of the Protocol or Activity(to be completed after the conclusion of the project)

Appendix B HREC Maps For Planning Purposes Only

1. Farm Overview

University of Vermont Horticulture Research Center Plot Map
Not Drawn to Scale
January 2007



Appendix B HREC Maps For Planning Purposes Only

2. Organic Plots

University of Vermont Horticulture Research Center Plot Map
Organic-Managed Zone
Not Drawn to Scale
February 2008

