

# **Draft Work Plan**

## **Agriculture Research Feasibility Study, Beginning Farmer, and Greenhouse Demonstration Project**

### **Work Plan Outline**

- Grant award date (date of funding received May 23, 2016).
- Draft Work Plan will be available for review on or before July 7, 2016, 45 days from the award date. The Draft Work Plan will be made available to the George Washington Carver Ag Research Center Board, Culpeper County staff, Rappahannock Rapidan Regional Commission Food Policy Council, and the Ohrstrom Foundation, for review and comment for a 15 day period as of 20 June 2016
- The Final Work Plan will be submitted to the Ohrstrom Foundation on or before August 6, 2016.

### **Task A-1: Interviews**

Issues at hand: A representative sampling of farmers with organic or sustainable practices will be interviewed to determine needs. A minimum of 5 farmers, one per county will be interviewed. Interviews will be coordinated with the local cooperative extension staff.

Activities: Interviews, compile questions, conduct interviews, write sum of interviews. Build stakeholders - interns on farms- competition. Through one-on-one interviews, discussion groups, polling and using other outreach mechanisms, we will identify agricultural needs that are not being met across the five-county region, including affordable access to highly-specialized farm equipment, access to new farming technologies, adapting to demands for new food crops and/or moving to organic farming methods, focus on opportunities and benefits of establishing co-ops for certain products, expanded markets for all products, and reducing food waste.

The focus during the interview surveys will include these topics:

- Specialized farm equipment,
- Access to new farming technologies,
- Adapting to demands for new food crops and/or moving to organic farming methods,
- Co-ops for certain products. Note, these may be leveraged with funding if awarded through Rural Development Block Grant (RDGB) and/or Local food Promotion Plan (LFPP),
- Expanded markets for all products (may be leveraged with RDGB and or LFPP grant), and
- Reducing food waste.

Estimated 20 hours, completed by 15 August, 2016.

Outputs: Develop a comprehensive list of needs for topics listed above from the interviews that will serve to inform recommendations and future steps.

### **Reporting Metrics:**

- # interviews (by geography and by sector, and others)

- Identification of needs on subtask topic areas
- Narrative for final Feasibility Study summarizing findings of needs and current status on topics:
  - Specialized farm equipment,
  - Access to new farming technologies,
  - Adapting to demands for new food crops and/or moving to organic farming methods,
  - Co-ops for certain products,
  - Expanded markets for all products, and
  - Reducing food waste.
- Interview results (survey forms for FS Plan in appendix)
- Number hours used both volunteer and paid, miles, expenses to complete A-1

### **Task A-2: National Program Benchmarks**

Issues at hand: Identify and examine a range of programs across the nation that offer innovative and useful models, along with the potential to adapt those programs to our regional attributes. Investigate cohort from University of VT class with survey and provide a tally of the results.

Persons/ Organizations to reach: Tufts University, University of VT Food Hub cohort interviews, Johns Hopkins Center for Livable Future, and Michigan National Ag database.  
40 hours by 30, August 2016.

Outputs: Chart summarizing national benchmarks and written documentation of results for FS Plan.

Reporting Metrics:

- Spreadsheet of contacted organizations and response (contacts, dates, results, etc.)
- Spreadsheet of information in narrative form for Feasibility Study report, presented to GWCARC Board and FEC by October 1, 2016 (for Tasks A-1 and A-2)
- Summary of national benchmarks of similar ag programs, to help set benchmark goals for the Culpeper Project.
- Number hours used both volunteer and paid, miles, expenses to complete A-2.

### **Task A-3: Gaps Analysis**

Issues at hand: Determine how to fill the gaps identified from interviews that are best suited for meeting farmer and producer needs based on the available land and facilities at the Carver School site.

**Activities:** RRRC contacts from Meter study, results from Task A-1, farmer interviews, local markets (restaurants, etc.).

Outputs:

- Recommendations presented to GWCARC and GWCFEC for comment, and outreach to others, such as the RRRC Food Policy Council (to help satisfy outreach goals);

- Summary of recommendations in report and to help guide future actions at the Carver site.

Reporting Metrics:

- Recommendations listed for needs (from above tasks).
- Input received from multiple stakeholders (GWCARC Board, final approval, presentations to others also).
- Number hours used both volunteer and paid, miles, expenses to complete A-3.

60 hours, Completed September 15, 2016

**A-4: Survey Education Needs and Partner Building**

**Persons/ Organizations to reach:** RRRC, Institutions, Nurseries, vineyards, The Local Food hub, the Blue Ridge Produce Food hub, other food aggregation organizations in the region, such as Harrisonburg.

**Activities:** Survey our educational partners (local community colleges, state universities, regional public and private middle and high schools) to determine their interest in partnering in agricultural-related research, on-site education, internships, and training opportunities. Conduct at least 5 surveys, one per county in the region, such as with school boards, nursing institutions, etc.

Outputs:

- Results of surveys of institutions and identification of needs
- Summary of recommendations in FS Plan and to help guide future actions at the Carver site.

Reporting Metrics:

- Surveys from interviews (minimum 5, ideally 15)
- Summary of needs based on results from surveys, documented in report format for FS Plan.
- Number hours used both volunteer and paid, miles, expenses to complete A-4.

80 hours, completed by 30, September 2016

**A-5: Alumni Outreach**

**Issues at hand:** There exist three groups of alumni from the Carver School that we want to engage in the project; two Regional High School groups and one Piedmont vocational group.

**Activities:** Work with Carver Alumni to determine how to preserve and present the rich agricultural heritage of Dr. Carver and this historic property. Hold facilitated dialogues with both alumni groups to determine how they desire to provide input to the project and identify collaboratively with interested alumni on how to best implement their input and ideas. Coordinate with the Culpeper School Board and Carver Alumni groups to provide outreach for meetings to solicit their input.

Outputs:

- A minimum of one meeting with each alumni group, as interested;
- Mailing distribution to solicit input for ideas for Carver School from alumni;
- Summary of alumni desires and recommendations in FS Plan and to implement alumni suggestions.

Reporting Metrics:

- A total of three+ facilitated meetings with alumni to identify their desired input in the Carver project.
- Number hours, both volunteer and paid, miles, expenses to complete A-5.

40 hours, completed by October 31, 2016

**Task A-6: Feasibility Study Plan**

**Activity:** Write up compilation of Tasks A-1 through A-5 with recommended next steps.

**Hours:** 45 hours

**Deliverable:** Feasibility Study plan posted to website for public access and review.

**Schedule:** Draft FS Plan November 30, 2016. Present findings for comment from stakeholders. Final FS Plan completed December 31, 2016.

**Project B: Design and establish a beginning/new farmer training program**

In order to inform and create a strong new farmer program, we need to respond to the aging of our present land owner/farmers, review our local food marketing distribution system, and define a working model for our program based on national farmer training program models.

Project B is divided into tasks B-1 through B-6, the work plan lists the following activities, as stated in the grant request:

- Obtain legal counsel to develop model long-term leases for the Carver site and for beginning farmers.
- Publicly announce and promote this project.
- Conduct soil testing to determine optimal sites.
- Establish access to irrigation water.
- Provide fencing in the selected area.
- Purchase a (used) tractor.

The deliverables for the present grant are relatively limited, as a comparison of the two paragraphs above will show. They are not meant to produce a final version of the New Farmers Training Program. However, by successfully putting in place the pieces listed directly above we will have moved towards to goals listed under the first paragraph as well as integrated this portion of the grant with the Project A portion.

**Task B-1: Develop model leases suitable for long term access to land.**

Issues at hand:

- The present knowledge base in farming is, for the most part, held by commodity farmers (in our area producing corn, soybeans, and wheat) who are aged 57, on average. This

implies a wholesale change in farming patterns, land use, and land ownership in the next 20 years.

- Much farm land is leased from non-farming owners on a 1-year basis. This leads to a pattern of land misuse and a lack of investment in the long term health of the land.
- New farmers lack capital with which to buy land (which would allow long term access and care).

#### Task B-1 Activities

- Obtain models of long term leases -
  - Through NIFTI and other sources we have already identified possible sources and models. Complete this action – 4hrs, by 15 June 2016
  - There is a single example in place locally. Make contact/visit with both parties – 10hrs, by 15 June 2016
- When possible, interview both lessee and lessor on points of agreement and contention
- Identify local legal counsel competent to vet various model leases and/or advise new farmers – 10hrs, by 1 July 2016
  - One lawyer has been contacted so far and is willing to review our work pro bono
  - Contact Farm Bureau and other farm credit agencies to solicit possible competent legal counsel – 10hrs
- Share proposed model leases with local farmers and land owners to get feedback on implementation – 20 hours, by 15 September 2016
- Apply such a lease to lands adjacent to the GWC as we expand the farmer training offerings.

Based on the proposed schedule for this task, the parameters for a suitable model lease will be in hand by 1 August 2016. Sharing of the model to obtain feedback will be completed by 15 September 2016

#### **Task B-2: Publicly announce and promote this project.**

Issues at hand: Raise awareness of the project to farmers to solicit interest in beginner farmer training. Provide outreach through signage and fliers, as well through newspaper and social media. There will be a concerted effort to work with the Virginia Cooperative Extension agents of the five county region.

- Obtain list of associations and farmers by 25 June, 10 hours.
- Create fliers by 15 July, 4 hours
- Install site signage by 15 September, 6 hours.

#### **Task B-3: Conduct soil testing to determine optimal site**

Issues at hand: The land available to the New Farmers Training Program is in two areas. The first is land that is part of the building site where the George Washington Carver High School stands and is presently leased as a secondary drain field location. This arable land is approximately 8 acres. Other land, up to 200 acres, has been offered for lease by the family that controls lands surrounding the Carver property.

The first property has never been farmed, and is therefore open to immediate consideration as “USDA organic”. The second portion is a) beyond our management capability at this time, and b) may need to be transitioned to organic over a 3 year period if that becomes the goal. In both cases, the organic matter (O layer/horizon) of the land need to be rebuilt.

As noted, the first property is legally designated as a secondary drain field for the Carver septic system. We have the septic plan in hand, so laying out the existing drain field is required to define the safely usable area.

Activities:

Soil samples for the first portion (8 acres) will be collected and sent to Virginia Tech in Blacksburg, VA for thorough analysis. We will ask for micro-nutrient analysis as well as for soil amendment recommendations based on vegetable crops. 3 hours labor, completed by 20 May 2016. (Done)

Follow-on requirements: The presently cleared land requires proper maintenance to keep weed pressure down and build the organic matter of the soil. We are aware of the timely nature of this need, and it is unlikely we will have the soil tests back such that we can lime, till, and plant a cover crop before the present weeds go to seed. Therefore mowing will suffice to keep weed pressure low until a cover crop can be planted. We will likely use some of the Ohrstrom grant money for lime and seed purchase, as this step is required as part of the program development. Though not part of the actual grant request or time-line, we expect this to be completed by 15 June 2016.

#### **Task B-4: Establish access to irrigation water.**

Issues at hand:

The design of an appropriate irrigation system to cover the 8 acres is dependent on four things:

- access to suitable, continuous water
- access to enough water based on per-hour needs
- plot layout/design based on siting decisions
- assumptions about farming methods

A recent engineering survey of the property has suggested abandoning the present well, as the cover building is collapsing around it and the casing is cracked. The condition and age of the pump is unknown, though it is functioning. Still, this is the only water available to the buildings and grounds unless and until a new well is drilled and put into service. It is also suggested by the staining in the facilities that treatment for acidity and iron may be required. If the present well water is used for agriculture, we will need information on mitigating the acidity.

Task B-4 Activities:

- Retrieve existing water test on the present well on the property. 2 hrs, completed by 15 June 2106
- Define an existing tap location within the present pipe system for the irrigation feed line, and prepare a plan for access to that feed point. (min dia. 1.5”). 3-5hrs, completed by 1 July 2016

- Review possible alternative/backup water source: 1 stream to the southwest of the property, 1 stream to the northeast of the property. 5 hours, completed by 1 August 2106

Follow-on requirements: The design of the irrigation system itself in both the hoop house and on the new farmer plots is in process now. It will include filtration, metering, and timing, as well as main lines and distribution systems. Neither the design work nor the implementation of the system itself is part of this grant request or task.

**Task B-5: Provide fencing in the selected area.**

Issues at hand:

Fencing will be required due to wildlife pressure. There are a number of possible systems, each with a benefit/drawback, and each with a cost. There are also planting design options that may lessen the need for certain kinds of fencing, such as planting beneficial insect-attraction buffer plots surrounding the food crop areas.

In the design of any fence system, maintenance must be taken into consideration. This likely means mowing around physical barrier fences, and re-plowing/re-seeding of insect buffer plots. These are on-going expenses not covered by the present grant.

Task B-5 Activities:

- Define the immediate need based on present animal signs. We assume both deer and groundhog pressure, but there may be more.
- Design the fencing and/or buffer strips.
  - In this step we will take an incremental approach, installing in the first place what may be useful if heavier or different fencing is required later. 10 hours, completed by 15 June 2016
  - Insect buffer strip planting: Fall 2016
- Install fencing.
  - Labor will be contracted. Completed and closed in by 15 August 2016

**Task B-6: Purchase a (used) tractor.**

Issues at hand:

There are three main lines of inquiry on a tractor purchase. The first is the scale of the equipment, the second is the ancillary gear needed to make a tractor effective. The third, more broadly, is tractor management. Both machinery upkeep and training in proper use will be an on-going focus of the program, requiring both time and commitment. As well, scheduling and proper costing to the individual trainees is critical to good tractor management.

The second and third point are outside the scope of the present grant. We list them here to point out their relevance to the success of the program overall.

Scale of equipment:

There is an effectiveness break point in garden management when moving from a walk-behind tractor to a 3-point hitch 4-wheel tractor. That break point is roughly 2 acres. Given our present 8 acres, we are considering a normal 4-wheel tractor (not necessarily 4WD) as the appropriate tool. This does not mean that a rototiller might not be useful, particularly within the hoop houses,

but it still leaves us with the stated need for a tractor for general farm/land management. Hence the grant request.

Tractors also have a scale factor as well. A certain minimum horsepower is needed to pull a plow point through different soils. On the other hand, too large a tractor scales up all costs. We feel the tractor we can best use will be 35-50hp with hydrostatic drive, three-point hitch, and 4 separate hydraulic feeds for implements.

Other equipment defined as “tractor” may need investigation. Tools such as [lay-down weeders](#) or specific truck garden tractors such as an [Allis-Chalmers Model G](#) are possibilities. As they are not covered in this grant, investigation of tools such as this will not be covered here.

The second point on ancillary gear depends on the crops and the methods used in land management. We have developed a list of gear we feel will serve the operation. Our efforts will be to use all local connections to see how much of the gear we can get donated for the publicity and return traffic it will bring the dealer.

#### Task B-6 Activities:

- Define a list of ancillary gear needed. Completed
- Define the size and specifications of the tractor needed. 3 hours, by 1 June 2016
- Develop a list of potential equipment donors. 3 hours, by 15 June 2016
- Close tractor purchase. 10 hours, by mid July 2016
- Close on either purchase or access to required land management ancillary gear. 15 hours, by 1 August 2016

Follow-on work: Build a collection of the required ancillary equipment for second year management and beyond. Make sure it is in good working condition and tested. Define and develop storage and security of all gear.

#### **Project C: Purchase and install a 90' greenhouse/high tunnel for additional seasonal growing and for testing specific crop production**

##### Issues at hand:

First, there is a significant difference between a greenhouse and a high tunnel. A greenhouse is a permanent fixed structure that likely has no cultivated land within it, no permanent crops, and requires heating and ventilation. A hoop house (aka “high tunnel”) is not permanently fixed (movable in some cases), covers cultivated land, in some cases houses perennial crops, tends to use natural ventilation and usually is not heated. Hoop houses are seen as season extenders for land-farmed crops; greenhouses are used to raise plants (and/or fish) for sale and/or relocation. Obviously, there can be some cross-over in function, as with starting seedlings in a hoop house that can then be planted in the same structure.

Though there is a significant greenhouse industry locally, at this point the greater immediate need in the program is for a hoop house. Nonetheless, we will be exploring linkage between the New Farmer Training process and the local greenhouse industry as the New farmer Training program gets off the ground – or, more likely, into it.



The direction that a hoop house faces favors its use in different seasons, and for different crops. Spring/fall crops do better in hoop houses with an N-S orientation. Summer crops or tropical crops do better in hoop houses with an E-W orientation. Usually, the desired crop will define the hoop house installation. In our situation as a training facility, season extension is one need, summer crop protection is another. As a teaching operation, we would use both. We are still researching whether the grant will be sufficient to be used for a single hoop house or for 2 somewhat smaller hoop houses with different orientations.

### **Task C-1**

- Research will be conducted and decisions made on the following issues:
  - Manufacturers, costs, delivery
  - Gothic versus Quonset design, benefit/drawback of each
  - Movable versus semi-fixed
  - Dual wall versus single wall, benefits/drawbacks of each
  - Passive ventilation capabilities (roll-up sides - methods and operation; operable end-wall vents; removable end walls vs. roll-up end walls)
  - Define construction details and related purchases required

30 hours. This research will be completed by 1 July 2016. Final order decision will be completed by 1 August 2016.

### **Task C-2**

- Define the specific location for the hoop house(s) on the Carver property.
  - Layout markers for existing drain fields to be avoided
- Make purchase, delivery, and erection arrangements

This task will run concurrent with Task C-1a

### **Task C-3**

- Erect the structure(s)
  - Define/invite volunteer work squad for the erection
  - Place underpinnings and tubular framing
  - Place frame tie-downs
  - Attach plastic sheet cover (season-dependent; may be done best in spring of 2017).

50 hours. Completed by 1 September 2016