

Proposal

To

Student Sustainability Committee

From

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Title

Building Capacity at the Student Sustainable Farm

## **Introduction**

The Sustainable Student Farm has been in operation since 2009 with support from the Student Sustainability Committee and University Dining Services. Most of our funding has gone to support the salaries of the farm manager, student interns, and summer employees. However, we have recognized that to produce more food will require an investment in facilities, tools, and equipment needed to gain efficiencies in production. As but one example, we currently wash our produce in large tubs of water that are filled on-site with a garden hose. While this works, it is not efficient or as effective as the process should be. A dedicated wash station would allow rapid and efficient washing of produce. We desperately need a storage building located at our farm. We need to store our equipment, walking tractor and electric tractor at our farm, not a half-mile away. We also need storage for hand tools, supplies, irrigation equipment, etc. at our farm, not a vehicle trip away. Again, this change will make our operation more efficient and productive.

## Budget Request

Item	Cost
<b>Infrastructure</b>	
Utility Storage Building	\$3,900
Vegetable washing station including extending water line to site	\$3,000
30x96 Rimol High Tunnel/Greenhouse w/ wood burning or biomass outdoor stove	\$10,000
<b>Implements for electric Allis G tractor (what are they?)</b>	
Lely Tine Weeder for Allis G Electric Tractor	\$1,250
Buddingh Basket Weeder	\$1,400
Buddingh Finger Weeder	\$1,500
Knives and Discs for Allis G	\$500
<b>Implements for BCS Walking Tractor</b>	
Berta Franco 34" Flail Mower	\$1649
AP-5 Root Digger Plow w/ hitch	\$260
30" CRIMPER-ROLLER for BCS 853	\$975
40" Hay Rake / Tedder	\$1,495
Round Hay Baler	\$8,500
24" Snow Blower, Single Stage	\$900
<b>Planting Equipment</b>	
Water wheel transplanter and 5 planting wheels	\$2,525
Jang 6-row planter w/rollers and hitch	\$3,650
<b>Other</b>	
Plastic Harvest Bins (50)	\$755
Hand Cultivation Tools	\$500
Chinese Chestnuts for Windbreak (25 5ft trees) w/shipping	\$1,030
Caterpillar High Tunnel 12x100 (2)	\$1258
Low Tunnels	\$2807
Total Request	\$47,854

## Justification

The storage building is desperately needed. Our current shop and storage area is 1/3 of mile from our farm. We need to be able to store and secure equipment we use frequently at the SSF site. From a sustainability perspective, many unnecessary trips are made back and forth from the SSF to the Crop Science facility to get hand tools, supplies, walking tractor, electric tractor, etc. These trips can be eliminated and efficiency improved with a storage building for the SSF.

The washing station is another critical issue for us. As concerns over food-borne pathogens increase, we must have the best possible washing and handling procedures for our produce. This would include a dedicated facility for washing vegetables and salad

greens, areas for drying and temporary storage, and the area must be winterized, i.e. able to prevent water lines from freezing during the winter.

An additional non-movable high tunnel/greenhouse is a necessary addition to our infrastructure. The plan would be to use 1/2 of the space for in-ground high tunnel production like our other high tunnels. The other half could be adapted to provide a heated greenhouse space for transplant production. Our ability to produce and manage our own transplants is essential as we scale up and diversify. We currently produce transplants at PSL on campus, but due to space limitations and differences in management it would be beneficial for us to have our own greenhouse space to manage. It makes sense from an educational and production standpoint. We hope to soon have solar electric capacity at the farm for charging the electric tractor. In addition we will have auxiliary power from the solar cells to draw upon to assist in regulating a production greenhouse. Plus, minimally heating our in-ground high tunnel space allows us to boost the quality of our winter production system. The use of an outdoor wood or biomass furnace would be the preferential source to heat this greenhouse/high tunnel.

As we strive to become more efficient, mechanizing tasks is an important piece of these efficiency gains. The electric Allis G tractor can be an important tool for controlling weeds, but we will need additional implements in order to fully utilize this tractor. The Lely Tine Weeder, Buddingh basket weeder, finger weeder, and knives/discs are all implements that will be used with the Allis G electric tractor for cultivation and better weed control. It is necessary in diversified vegetable production to have many tools for cultivation because of the many different planting patterns and spacing. There is no "one" tool that fits all tasks when it comes to mechanical weed control. This is why multiple tools for this tractor are necessary.

The walking tractor was purchased this spring for use at the SSF. It is ideal for use in the high tunnels and for smaller plantings where larger equipment is difficult to utilize. In addition to our current implements for the walking tractor, the flail mower and crimper-roller are two implements that we need for managing our cover crops that are so important in sustainable vegetable production. The mower is for general mowing and cover crop mowing, while the crimper-roller will allow us to experiment with some no-till/living mulch planting directly into cover crops with vegetables like tomatoes, melons, squash, pumpkins, etc. The root digger plow is going to be essential when we expand into harvesting root crops such as carrots and potatoes. As far as the haymaking equipment and snow blower are concerned, the ability for us to make straw/hay mulch from our cover crops will compliment our weed management program and lessen our need to use plastic or biodegradable plastic mulches. Plus, it could help us initiate small scale on farm composting by giving us a means to collect and process cover crop materials as bulking agents for compost making. A snow blower implement would be nice to have to clear the high tunnel sides and fronts for access during winter production. Plus, we are often blocked from even reaching the tunnels from the road when heavy snow accumulates.

The planting equipment outlined is essential for scaling up our production. The current equipment we utilize is meant for smaller plantings of 2 acres or less. We need durable equipment that is well-built and meant for long-term usage in a commercial vegetable operation. The water wheel transplanter and Jang 6-row planter will be adapted to use with our Allis G electric tractor. These implements will allow for large, straight plantings that are essential to successfully implement our mechanical weed program we

are developing with the other tools outlined above. Plus, over the long term it will be a tremendous labor savings over our current hand transplanting and direct seeding methods.

The other equipment outlined is plastic bins for clean, standardized harvesting and delivery to the dining halls to eliminate our reliance on recycled wax boxes. These boxes are unreliable and not washable. By utilizing plastic bins for harvesting and delivery, we have a washable easily re-claimed harvest container for unlimited re-use. We also have a need for more ergonomically sound hand-cultivating tools to complement our mechanical weed production systems. The 25 Chinese chestnut trees are to act as a wind break and an additional crop to harvest for revenue. Our need for a windbreak to protect our plastic on the high tunnels has been well established. The Chinese chestnut is an excellent option due to its adaptability and low maintenance in our hardiness zone. The final items on this list are our set ups for caterpillar high tunnels and low tunnels which will be made from items we procure and purchased pipe benders. These systems are fractions of the cost of our current high tunnels and can be built a little easier by hand with very little equipment. These structures can't produce through the winter like our other tunnels, but can give us a jump on the early season and help us with insect control by getting established before insects become a problem, as well as an exclusion barrier. Self-made high tunnels are how a lot of growers are getting into the high tunnel business before purchasing large expensive structures like our existing models. These will inexpensively help us ramp up our production during the times of the year when outdoor production is not possible.