## **Proposal Brief**

## Leandra Forman

During my eight weeks at Factor e Farm I plan on working on the Tractor Development Project. I will be working for the first two weeks on learning Google Sketchup 3D design and documentation. This project will involve taking the current design for LifeTrac and tweaking certain aspects, such as adding a joing for articulation, looking into alternatives for the power source, adding metal wheels that can be fabricated in the workshop, modulated bulldozer attachments such as a blade or backhoe, and looking at a wheel drive geardown unit. These are the already discussed projects, however more may present themselves as the work develops.

The design aspect is intended to be as extensive as necessary in order to make production efficient and speedy. Each aspect of the design will be fully documented with assembly and fabrication diagrams that are simple and straightforward. These will be accented with instructional video and concise information so that all that is accomplished will be easily shared in an open source format and replicable by anyone accessing these documents. During the design process, I will also be learning to use the video editing software so that all of our information can be well presented in a public forum.

The fabrication will include training on the CNC torch table, as well as all other forms of metalworking that building the frame will involve. It will also include working with the power system, hydraulic system, and electronic controls. I have limited previous experience with metal fabrication, such as both stick and MIG welding, plasma torches, oxy-acetylene torches, milling, drilling, manipulation, casting, and separating. I have some experience with very basic hydraulic systems on tractors, as well as basic mechanical maintenance. All of these skills will be much further developed during the process of constructing the tractor.

The other portion of this project will be testing the tractor in the field, possibly on a pond digging activity. There will then be analysis of its performance with special attention paid to those aspects which were re-designed on this edition of LifeTrac. The limits of the tractor will be pushed to ensure that the design holds up to expectations and that it will be able to perform well for anyone that chooses to replicate the plans. Any noticeable failings will be corrected and altered in the plans as we see fit.

As this is a student internship, much of the time will be dedicated to learning the aspects of design and realization and will be under the supervision of the Product Lead/ Workshop Manager. All skills and information will feed directly into the developing collaboration between OSE and Berea College for the upcoming semester for an on-campus, interdepartmental tractor build project.