Introduction

There is a long history of cultivation in Sewanee, which was previously a more agriculturally sustainable university. A small plot of land near the old dairy on Brakefield road was farmed through much of the last century and has remained a community garden. Thin, dry soils atop the Plateau do not make this an ideal setting to grow crops as seen in the verdant landscape of the coves below. However, with care and maintenance of the soil many micro farms and personal gardens have thrived, including one that Dr. Smith’s Soils and Cultivation class has cultivated.

Objectives

The study was done in the garden as well as the classroom with the intentions to:

• Gain practical experience with all aspects of gardening
• Understand soil nutrient status in the garden plot and surrounding land
• Gain some understanding of land use history through soil nutrient analysis
• Understand methods important to organic gardening and improve soils
• Grow a variety of vegetables

Methods

In a single semester, the 20+ members of the class converted a fallow plot infertile with blackberry bushes to productive raised beds. The process:

January

• Plot was cleared with loppers, axes, and rakes (Fig. 1)
• Soil manually turned with shovels and raised beds created from soil mounds
• Amendments added and mixed into soil: straw, dead leaves, grass clippings, manure

February

• Seeds planted in trays and kept in Snowden greenhouse (Fig. 2)
• Cold frames constructed and planted with seedlings (Fig. 3).
• Soil samples sent to lab for analysis of nutrients. Bulk density measurements taken
• Soil depths measured in garden and by old barn

March

• Seedlings planted in beds
• Weekly watering and weeding, organic fertilizer added
• Soil depths measured by old dairy

Results

Land Use History

The organic garden, as well as the fields on either side of Brakefield Road by the old barn and the old dairy, have been through periods of farming for the past 113 years. Soil properties attest to this history:

• High levels of Phosphorous and Potassium—indicators of remnants from excessive fertilization and presence of livestock (Tables 4 & 5).
• High levels of Calcium—Calcium dominates up to 94% of soil cation saturation due to years of liming.
• Higher pH—Calcium raises pH close to neutral (Tables 4 & 5).

Future farming?

Conditions in the student garden as well as near the old barn and dairy show us that, though Sewanee may not be the ideal place to farm, alterations can be made to the soil so that it is productive.

• The field by the old dairy would be a suitable site for cultivation because:
  • Fertile.
  • Suitable for aeration and root penetration. This also tells us that this area was probably never a parking lot or construction site (Table 6).

Conclusions

Gardening requires a huge amount of labor and preparation, but with the right soil conditions and growing techniques, a small plot of land can produce a lot of food. Aside from the general skills gleaned from a hands-on gardening experience, we learned a lot about soils and cultivation through this process:

• Amendments to your soil can boost fertility by adding Nitrogen and Phosphorous. A good balance of dry leaves, grass clippings, manure, and compost will increase organic matter and increase moisture holding capacity and cation exchange capacity.
• Soils can be quite nutritionally unbalanced and show no visible signs of being unhealthy. Lab analysis may reveal nutrient deficiency or oversaturation that will inhibit availability of other nutrients.
• The way a plot of land is used may influence the site for decades and the impact can be irreversible.
• Direct seeding of vegetables is a slow process, but if done correctly can be the most economically feasible and efficient way of planting a mass crop.
• Soil organisms, seen and unseen, are vital to the health of your soil and plants.