

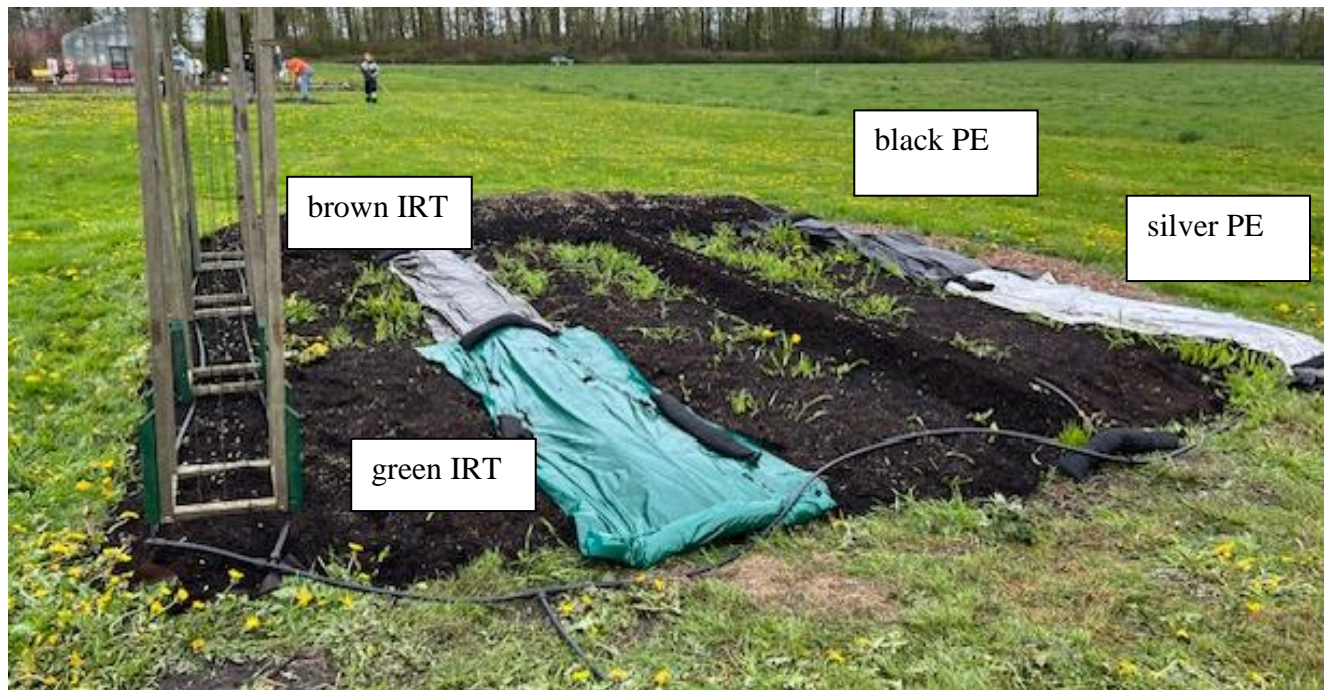
2023 Hovander Demonstration Garden Project:

Final Review & Lessons

Let me begin by thanking the 2023 Master Gardener class for help with this year's demonstration, especially Juliana Bohn and Beverly Aabjerg who signed onto the project early and have hung in with me throughout, their help and discussions concerning this and other gardening topics has been essential in helping me form my thoughts on the project.

GROWING SEASON 2023:

The 2023 demonstration/inquiry was to gauge the viability of using polyethylene (PE) sheet mulch over multiple seasons. This is the second year the black and silver PE mulch, below, were installed after being cleaned and sanitized following last year's use.





The center row consisted of two types of Weed Guard Plus paper sheet mulch.

Additionally, and new this year are brown and green infrared transmitting (IRT) PE mulch. These IRT mulches are formulated to pass more infrared heat through the PE and into the soil increasing temperatures.

Drip irrigation was installed beneath the sheet mulches when installed and set on a timer to run every two days.

As an experiment, we planted a variety of summer cover crop between the rows and included red and crimson clover, buckwheat and alyssum. No additional irrigation was installed for the cover crop.

Crops included a variety of bush and pole snap beans, squash and melon.

How we got to this:

What we're doing. Use of sheet mulch in this garden was meant as a demonstration of a no-till, low maintenance style of home gardening. The mulches chosen have proven quite effective for weed control and soil moisture retention over a number of years. Pathways between rows without established beds is the issue in this style of a no-till organic system.

Where we're doing it. This garden plot is at one of the lowest points in Hovander Park. This is important as it is also a flood water relief zone for Whatcom County and the City of Ferndale in case of flooding on the Nooksack River. During the major flood event in the fall 2021 this area received substantial flood waters reaching approximately four (4) feet deep over this low lying area and remained in place for several days and extremely wet for several weeks. While the soil in this area is the much sought after river silt, it does present the question of the effective of the weight of the water for a prolonged period as well as the question of the soil becoming anaerobic.

Soil health. More from curiosity than concern, we ordered a *Haney Soil Test, attached*, (The Haney measures microbially-available pools of C and N, as well as microbial respiration potential in a lab incubation.) This test was consistent with prior soil tests measuring soil chemistry and gave a soil health score of 27.1, which means...nothing really as this test has not been calibrated for NW soils and needs to be conducted over several years to obtain any sort of useful baseline, more on soil health later. All recent soil tests show the Hovander garden soil to be in very good shape with high levels of organic material as well as measured nutrients, with the

exception of Nitrogen. To increase nitrogen we added alfalfa pellets as well as a mixture of nitrogen fixing summer cover crops, noted above.

Results: Not quite what I was aiming for.



After initial squash/melon planting and the cover crop germination it was easy to control the cover crop growth by simply mowing it, but as the squash began to take off, the vines quickly grew into the paths and the cover crop began to out compete the squash. Mowing/cutting the cover crop became nearly impossible without harming the squash plants.

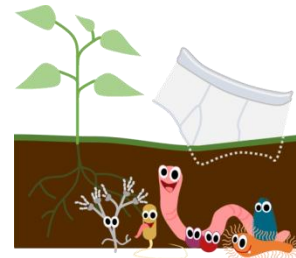
Two primary problems resulted. The cover crop quickly overgrew the squash adversely effecting production. Secondly, mice were able to make/build an Interstate highway through the garden and help themselves to sampling squash until finding the variety to their liking, vegetable/spaghetti squash is clearly the winner as far as the mice sampling.



Soil Health: Soil Your Undies

A Natural Resources Conservation Service (NRCS) initiative

<https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/oregon/soil-your-undies-challenge>



This test is designed to be an inexpensive and easy way to gauge soil health by checking for soil biology with the untreated cotton proving a food source for soil microorganisms with the elastic as an indicator that the cotton/carbon was in fact consumed by the soil life. Please refer to the NRCS page for more complete information.

1. **Plant** a pair of new, cotton underwear horizontally about 3 inches deep in the site you're curious about. Don't forget to mark the spot you planted!

2. **Wait** at least 60 days. This gives your soil microbes time to do their magic! Then dig the undies back up.

In our case, we planted six (6) pair of XL all cotton undies in the experimental/demonstration garden.

- 1) Under green IRT
- 2) Under Silver PE
- 3) Between rows within the cover crop
- 4) Hugelkulture
- 5) Between the comfrey and horseradish plants in undisturbed soil
- 6) Planted vertically at a depth between 3-12 inches.



All I can say is, it works very well and provides a fun and dramatic demonstration of soil health. The one



clear take away from our demonstration is the importance of water in the process. All of the undies planted in squash beds, which include drip irrigation, essentially disappeared with very little if any cotton left over. The two pairs planted in the hugelkultur and comfrey/horseradish were surprisingly intact. The hugelkultur was assembled with a woody garden debris base then covered with a very high quality soil containing visible fungal hyphae and earthworms and compost. The comfrey/horseradish area has been undisturbed for a number of years and the plants are thriving, neither of these areas received supplemental water during the year.

- **Conclusions from 2023:**

- Sheet Mulch works
- PE mulch can be reused over multiple years when handled carefully
- Drip irrigation is essential
- Be very careful choosing summer cover crop for use in your active garden
- Don't make rodent playgrounds
- Make sure what you want to grow is out competing what you don't want to grow
- Water = Life even in the soil
- Flooding appeared to have little if any effect on the soil
- Take care of your soil and it will take care of your plants