

# Lesson: Solar Water Purifier

This is a fun way to better understand the water cycle AND learn how nature purifies water in the atmosphere. This is energy too.

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## The Evolution of the House

This house has a history! 160+ years of history is not getting fixed in just one season. But we love her and she loves us back.

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## Prep Your Soil, Plan Your Plantings

It's important to plan your garden well. It's also important to pay ATTENTION to the planting instructions that come on your seed packets. Otherwise your plants and vegetables will all go feral – literally. Take the case of the carrots and turnips.

1. Well drained soil? Check.
2. Soil acid and nutrients balance in balance? Check.
3. Soil crumble, structure and amendment schedule correct?  
Nope.
  - Need more soil depth, need more sand.

Lesson learned.

So for this year as I map and plan my garden bed use, I will pay attention to the microstructure of the soil and go boldly forward knowing what needs to happen where. I didn't realize this before. But failure is a powerful tool. While technically this is not a failure, there is room for improvement.

When I first started gardening I saw all soil the same – an automagic earth outlook – to paraphrase Paul Simon. But one needs to be more selective, sophisticated, and nuanced if you want maximum yield from a garden. The soil and it's structure is important, the water is important, the balance of nutrients and minerals is important, and the microecologies (bacteria, fungus, insects, arthropods) are important. In addition to "Crazy Carrots" and "Torpid Turnips" I had about 20% mush vegetable some sort of fungus or parasite. I need to get a handle on that as well. I also need a proper root cellar, but that will have to wait.

What lessons have you learned the hard way? Feel free to share your stories. This is year five for me. I have had:

1. the building planting year
2. the year of the external soil nutrients and explosive, unsustainable yield AKA store bought fertilizer
3. the year of the belladonna massacre and the nitrogen catastrophe
4. the year of neglect and resetting
5. and this is my first year of balanced, reliable yields.

I'll remember this victory fondly as I move forward with Mezzacello.

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# Some of my Dreams are Squashed

In my ongoing effort to preserve as much food as possible I've had to experiment with alternative ways of storing food. I've done a lot of research and consulting a lot of desperate agricultural experts. From extension offices to Amish farmers to YouTube. In my search to optimize my 40% food savings I wanted to discover a way to preserve soft flesh vegetables like squash. A lot of the advice was to store squashed wrapped tightly in paper and stored in an open air container in a dry, dark, temperature regulated environment. I tried that. As you can see in the photo below it's not a success. You can see the squashes wetting the paper wrapping with their death throes. I have to keep experimenting I guess.

My takeaway here is that I have found that the laws of physics, specifically the Boltzmann Constant do apply. (Boltzmann Constant:  $1.38064852 \times 10^{-23} \text{ m}^2 \text{ kg s}^{-2} \text{ K}^{-1}$ ). You might know the Boltzmann Constant as entropy. We went away for a week to spend time off farm with family and nature continued on in my absence running on autopilot and oxidizing my valuable vegetables in storage. But we really needed that break. Being on all day at work and on all night and weekends at Mezzacello is hard to balance. Entropy was eating at us too. Usually I can leverage technology and systems to offset some of these burdens. But not this time – not yet at least.

Being out on vacation meant I was not continuously monitoring the food stores in my root cellar. This is one of the major differences between Modern Urban Farming and Traditional Farming. In a traditional farm there is someone on hand all the time. But in a modern lifestyle, you will have to be away and you need systems in place to replace that large family of the traditional farm into play. I think I have an idea though.

I want to design a sensor that will “read” the amounts of CO<sub>2</sub> and Sulphur in the local area. This will allow me to know when rot is happening and then I can act quickly to get someone over there if I am out. But I also need to extend my root cellar one step forward – a refrigerated room that will extend the storage of soft cell vegetables even further. That’s a phase III project though.

Let me know in the comments if you have any lessons or ideas on how I can extend the life of soft cell vegetables longer without the use of a walk in refrigerator or freezer.

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## **Sustainability and Renewal**

The secret to sustainability is finding ways to reintegrate waste and produce more than you started with. Repeat and add diversity.

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## **Practical Water Management**

Water is one of the holy trinity of resources in an urban ecosystem, alongside biomass, and flora and fauna.