

Summary: Organic Seedling Production

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Location, Location, Location

It is very important to consider the location of your greenhouse for maximum efficiency. You should take into consideration the physical proximity to trees and other structures that may create unwanted shaded areas. It is also important to keep in mind the distance of the greenhouse to your planting beds. You want to reduce the time it takes to get to and from the beds and the greenhouse.

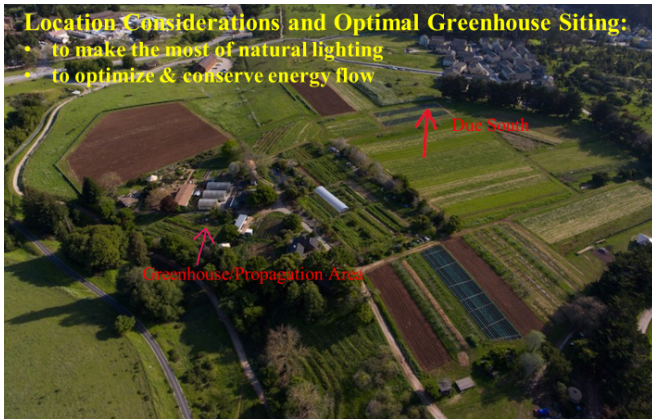


Figure 1: Layout of UCSC Farm.

Workspace Design

To maximize your bottom dollar, it is important to consider the layout of your greenhouse workspace. The layout inside of the greenhouse can have a direct impact on the amount of time you spend walking around tables and other tools in your workspace. You can use this time to rearrange the space and tidy up any materials to maximize productivity (Figure 2).

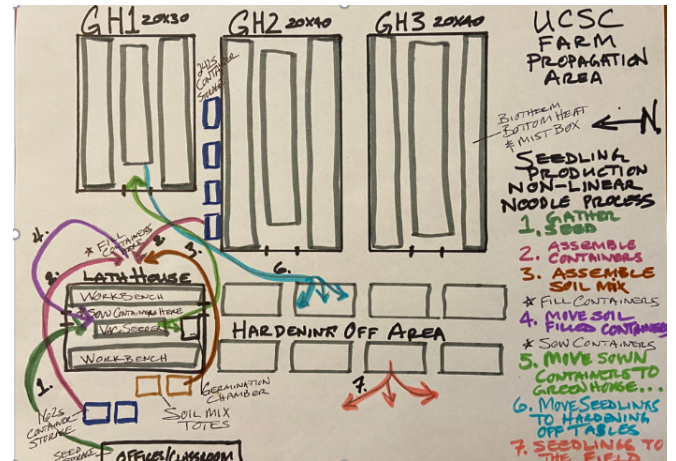


Figure 2: UCSC Farm Process-Flow Inefficiency: Seed Sowing & Seedling Development.

Soil Mixes: Mix your own or buy premixes?

There are advantages and disadvantages to making your own soil mixes and buying them. The key points to consider before making a decision on which route to take are listed in Table 1 and 2.

Table 1: Making your own soil mixes.

Advantages	Disadvantages
Control of inputs, structure, and texture	You need to stockpile raw ingredients
Control of batch size	You will have to know how to balance pH
Control over sustainability of the mix	Will require a large amount of time and labor input
Control over quality to better fit your crop	Higher chance of getting the levels of nutrients incorrect
Control over moisture levels for sowing	

Table 2: Buying soil mixes in bulk.

Advantages	Disadvantages
Can purchase high quality mixes	May lack fertility inputs
Less material to stockpile	Can be composed of non-sustainable ingredients
Time and labor cost savings	Large totes may require forklifts to move around
“Loose fill” totes are easier to handle	May dry out in storage
	Can be expensive to purchase

Propagation Containers

Propagation containers come in different shapes, sizes, and qualities. When purchasing containers, consider the material of the container that allows for multiple uses. You may also want to choose containers that are the right size for the type of seed you will be sowing into the cell (Figure 3). By targeting the perfect container for your seed, you create consistent and uniform seedlings that are easier to transplant.

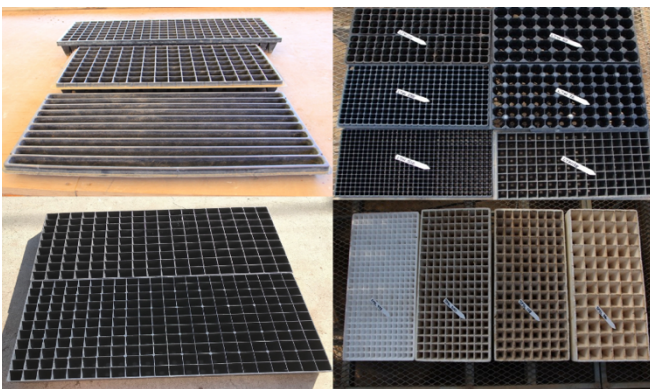


Figure 3: Different types of seed trays.

Sowing Methods

Sowing seeds is one of the more labor-intensive parts of growing your own seedlings. There are multiple tools which can help with the sowing process. Some tools are as simple as a trowel but can be more elaborate like vacuum-seeders (Figure 4). The vacuum seeder is intended to quickly

separate individual seeds into their cells. Vacuum seeders can be bought or built at home at a relatively lower price point.



Figure 4: Build your own vacuum seeder.

Germination Chambers

Germination chambers are a great choice for organic seedling production. They maintain humidity and temperature at the desired level and provide an efficient use of space and are relatively simple to build your own (Figure 5).



Figure 5: Build your own seed germination chamber.

Watering Methods

There are a couple of options when it comes to watering seedlings. Automated watering-systems are consistent and reliable however, they can require a large capital investment and may require deeper knowledge of the system to adjust manually. Once the system is established it reduces the amount of time spent watering seedlings. The second option is the hand watering method. This route is more labor intensive but provides flexibility and success with diverse crops. The hand watering

method also requires a learning curve for proper watering techniques but once those techniques are established can be a consistent and reliable method (Figure 6).

Pest and Disease Management

The best way to manage pests and disease is to create a schedule that encourages preventative strategies. This includes frequent monitoring, early detection, treatment, and intervention.

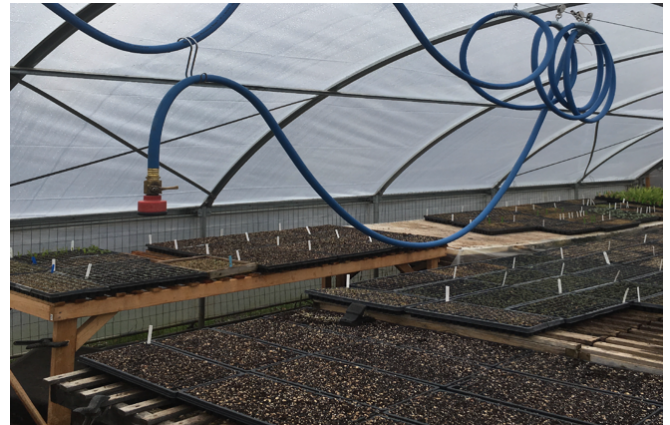


Figure 6: Hand watering system.

Pest and Disease Management Template

A framework for thinking about managing all potential pest and disease issues.

Pest Species: Requires proper identification to take informed action.

Causes: Temperature soil media – structure, texture and porosity, moisture, lack of air circulation, improper fertility.

Damage or Symptoms: Stunted growth, weak roots, holes in leaf canopy.

Tolerance Threshold: What level of pest or disease presence threatens neighboring crops, becomes a significant setback, or is an irreversible problem.

Treatment Strategies: What organic tools, physical, chemical, biological, will address the problem.

Crops Most Susceptible: So as to know what other crops to monitor, potentially act upon.