# Seed Starting

Produced through The Northern Rhode Island Conservation District's **Providence County Urban Growers Leadership Program**, in partnership with **Fatema Maswood from Providence Seed Library.**

Northern Rhode Island Providence County Conservation District

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# What is Seed Saving?

Seed saving is the practice of collecting mature seeds produced by plants in order to plant them in future seasons. Seeds are technology, lifeways, kin, a history of relationship to the land.

**A seed library** is space for storing and distributing seeds as a community resource, and an important component of food sovereignty and seed sovereignty. **The Providence Seed Library** is an accessible resource to access seeds, learn about gardening and seed saving, and return or donate seeds for other community members to access. We use a community-based approach, in which seeds are shared for free and ideally grown out each season, adapting to our local climate and context.

*Ozark Cowpeas (Vigna unguiculata)*

# What is Seed Starting?

Seed starting is creating conditions to break seed dormancy – seeds are plant embryos that wait for ideal conditions to germinate.

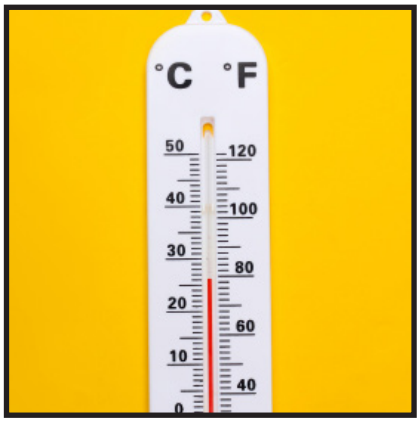
## Why Start from Seed?

- *Allows you to grow culturally-relevant plant varieties that usually aren't available in stores*
- *Adapt plants for local climates*
- *Better understand plant life*
- *Experience joy and wonder*
- *Some plants prefer being direct sown*
- *Some plants don't like roots being disturbed*
- *More affordable than buying plant starts*

*Providence Seed Library*

## What do most plants need to grow?

- *Approximately 12-14 hours of light a day*
- *Water*
- *Growing medium*
- *Appropriate temperature*
- *For many annual food crops, this means soil is warm enough for germinations*
- *Many native/perennial plants from this area need periods of cold and warm to germinate*
- *Observation, care, and attention*



# Growing Medium

Many of the nutrients plants need are contained in the seed already

**Seed starting mix should be:**

- Able to hold moisture
- Offer lightweight, well-aerated soil for roots to spread
- As plants grow, they need more nutrients (compost) and space (bigger pots)

- **Seed starting soil mixture:**
  - 2 parts sifted potting soil
  - 1 part expanded coco coir
  - You can buy blends or make your own. Common materials added include peat, perlite, sand,
  - vermiculite
- *Add water to soil before adding seeds, especially with small seeds*

Coco coir block

Potting soil mix with perlite

# Planting Methods

Plants need plenty of space to grow. If you plant them too close together, they'll be too crowded and won't grow well

- **Option 1:** Placing 1-3 seeds in a single cell and removing any extra seedlings when the plants grow
- **Option 2:** Pressing a layer of seeds on the surface, and then transplanting once they have a substantial enough root. Most plants should still eventually be moved into enough space for them to grow and develop a large enough root system.

# Tricks

- **Planting depth = 3x length of seed**
  - Not 100% true, but often works
  - Very small seeds can just be pressed into soil surface
- **Float Test for viability**
  - Good seeds often sink to the bottom
  - Seeds that aren't mature float to the top
  - Not 100% reliable, but often works
- **Soaking seeds in water to speed germination**
  - Works for a lot of seeds
  - Many do this for peas or corn before direct sowing
  - Some say not to do this for beans
- **Knick/scratch seed coat with knife or sandpaper**
  - With certain seeds this allows water to enter thick seed coat, mimics natural weathering
- **Cold stratification to break dormancy**
  - Some plants need their seeds to be in the soil in the winter and experience the change to warm spring temperatures
  - More common for wildflowers, trees, native perennial plants
- **Growing Season = number of days between first and last frost**
  Start plants early that they're able to grow to maturity before it gets too cold for them to survive


Planting Depth


Float Test


Soaking Seeds


Cold Stratification

**Growing Season = number of days between first and last frost**

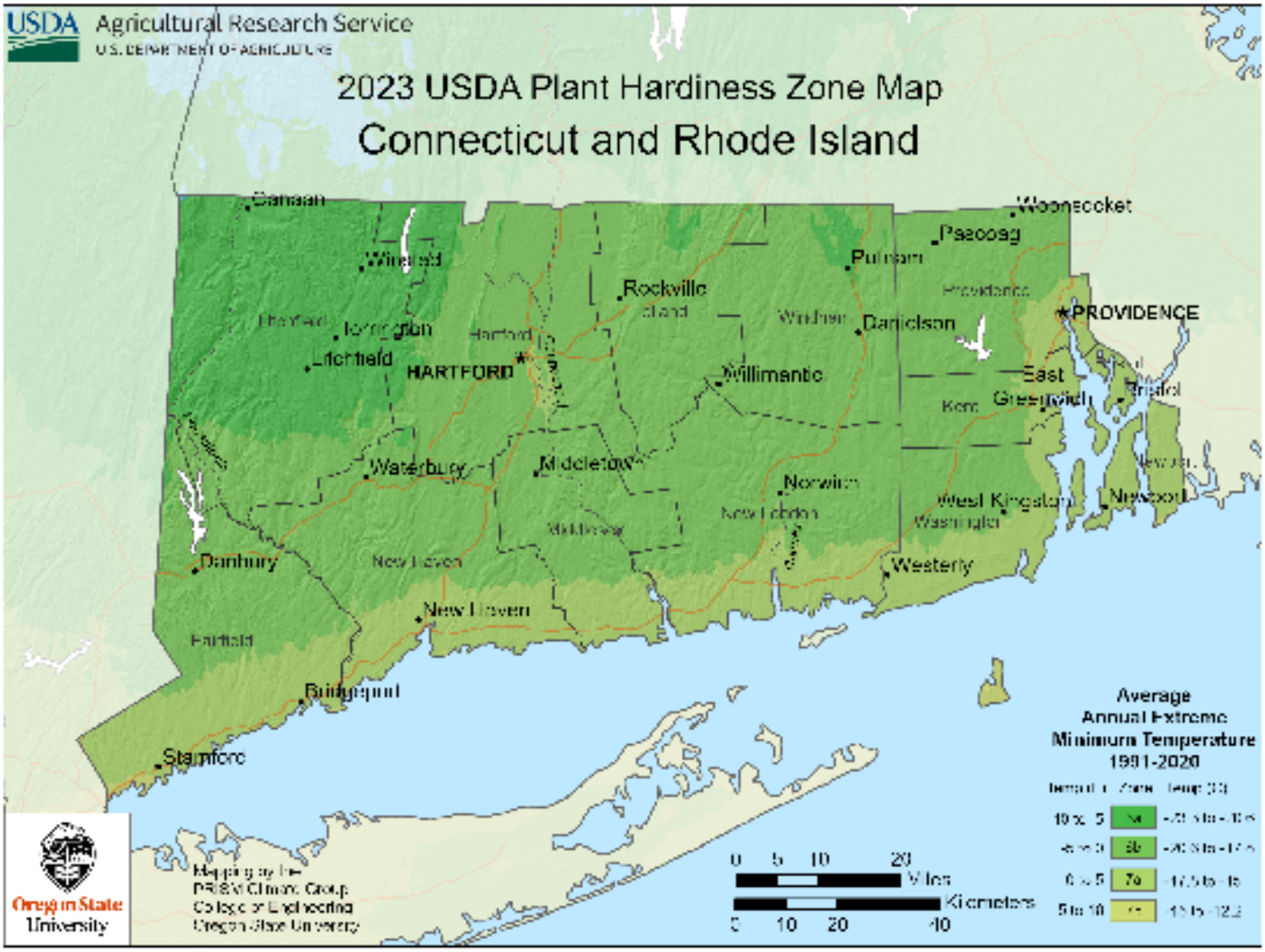
*Start plants early that they're able to grow to maturity before it gets too cold for them to survive*

## Rhode Island in USDA Zone 6-7, 6b – this is changing rapidly

Indicates timing for **annuals**, also indicates what can survive as a **perennial**
For example, some plants would be a perennial in a place with a warmer winter but can't survive the typically cold winter in our region.

**Indoor Sow** – creating an indoor + warm + bright + humid environment to start growth earlier, allowing for earlier harvest, lengthens our short growing season in the Northeast

**Direct Sow** – wait for soil to warm (beans, corn, cucurbits, okra, etc) and plant directly in soil outdoors



# Seed Starting/Home Germination Set-up

*Lights, warm space, plastic/greenhouse to cover trays: Warm spectrum LED light 3" above seedlings*

*You can use heat mats to hasten germination· Helpful for plants like peppers that like having warm soil·*

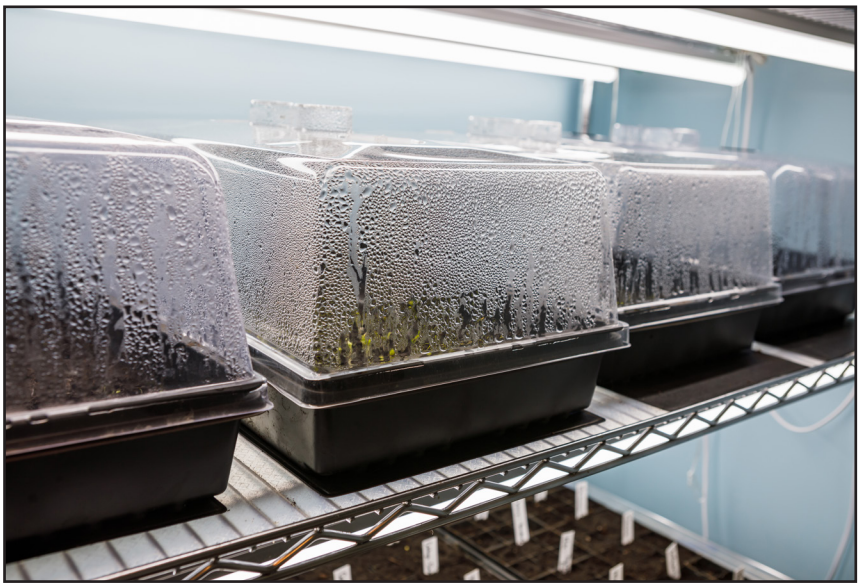
*Be careful of soil drying out quickly with heat mats!*

## Tips:

1. Don't forget to keep the seedlings in bright light aligned to the cycle of the day
***2. If you have seeds under an LED light at home, turn it off at night***
3. You can get a timer and set it to turn on the lights at sunrise and turn them off at sunset
4. If they have long pale stems they are leggy – it's better if they have a low growth habit
5. Try to set them up so light distribution is even – seedlings will grow towards light
6. Plants that are close to the light source may do better while others struggle

**Label everything clearly! Plant name, Date. Keeping a notebook is also great!**

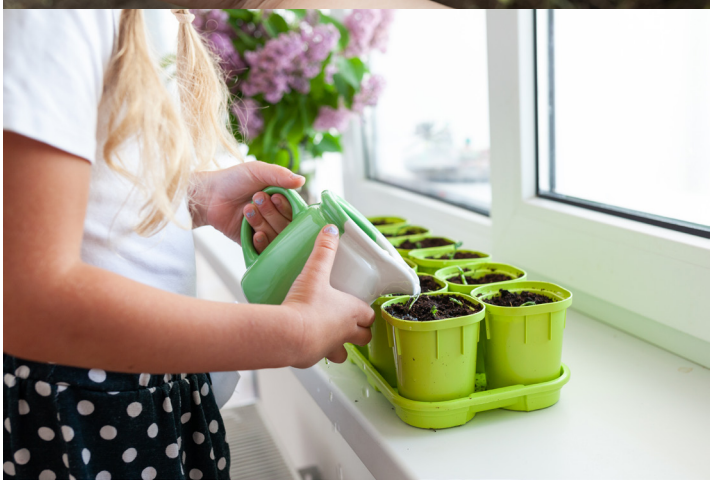
Create a humid environment but not too enclosed, still need air circulation. You can place a fan in the area!

## Watering:

- Don't let the seedlings dry out, especially when they're young
- Be careful not to overwater, this can cause root rot
- **Water the soil, not the leaves**
- This minimizes opportunities for fungal issues. For this reason, also good to water in the morning.
- You can also try ***bottom watering***:
- Place seed flats in plastic trays and only water the trays.Better for when seedlings have more of a root system

## Hardening Off



- If you started plants indoors, putting them outside without a transition period can be too stressful for the plant.
- ***Start bringing them out gradually.***
- Set them outside during the day for a few days (take them back in at night). Then begin to leave them outside overnight for a few days. Then transplant the plant into its final spot outdoors.

## Seed Structure Vocabulary

***Monocot*** — plant that puts up one seed leaf. Monocot plants have a branching root system.
***Dicot*** — plant that puts up two seed leaves. Dicot plants have a single taproot system.
***Plumule*** - seed leaves/cotyledons.
***Radicle*** - root structure. Seed coat = outer protective casing


## Plant out after first true leaves

First set of leaves plants grow are seed leaves are called ***cotyledons***


- Don't yet look like the plant's typical leaf shape. After seed leaves mature, true leaves will grow.
- Can begin to harden off plants and prepare to plant them outside or in a larger container once they have a set of mature, healthy true leaves