



Module 5:

Plant Propagation - Seeds



LSU AgCenter Home Gardening Certificate Course

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Gardening Notebook/Garden Journal

1. Soil Test Results
2. Amendments or fertilizers used, how much, when
3. Plant varieties planted and when
4. Seedlings started and when
5. Transplants planted and when

Gardening Notebook/Garden Journal

6. Insects or diseases noted, when, control measures
7. Sprays (chemical or organic) used, when, how much, why
8. Unusual weather conditions
9. Production of vegetables, which ones you liked best
10. History

Two Basic Methods of Plant Propagation

Seeds (sexual)



Vegetative (asexual)



Sexual Reproduction in Plants

Flowers contain the male and female flower parts either in the same flower (perfect) or in separate flowers (imperfect)

Pollen (male) is moved from the anther to the stigma (female)

Transfer of pollen can be by wind, by insects and animals, or by self-pollination

Sexual Reproduction in Plants

The pollen tube forms and the sperm cell moves down the tube to the egg (ovule) in the ovary.
They join and the act of fertilization is complete.
The plant develops (sets) seed
The seed contains genes from the male and female flower parts
They can both be from the same plant or from different plants

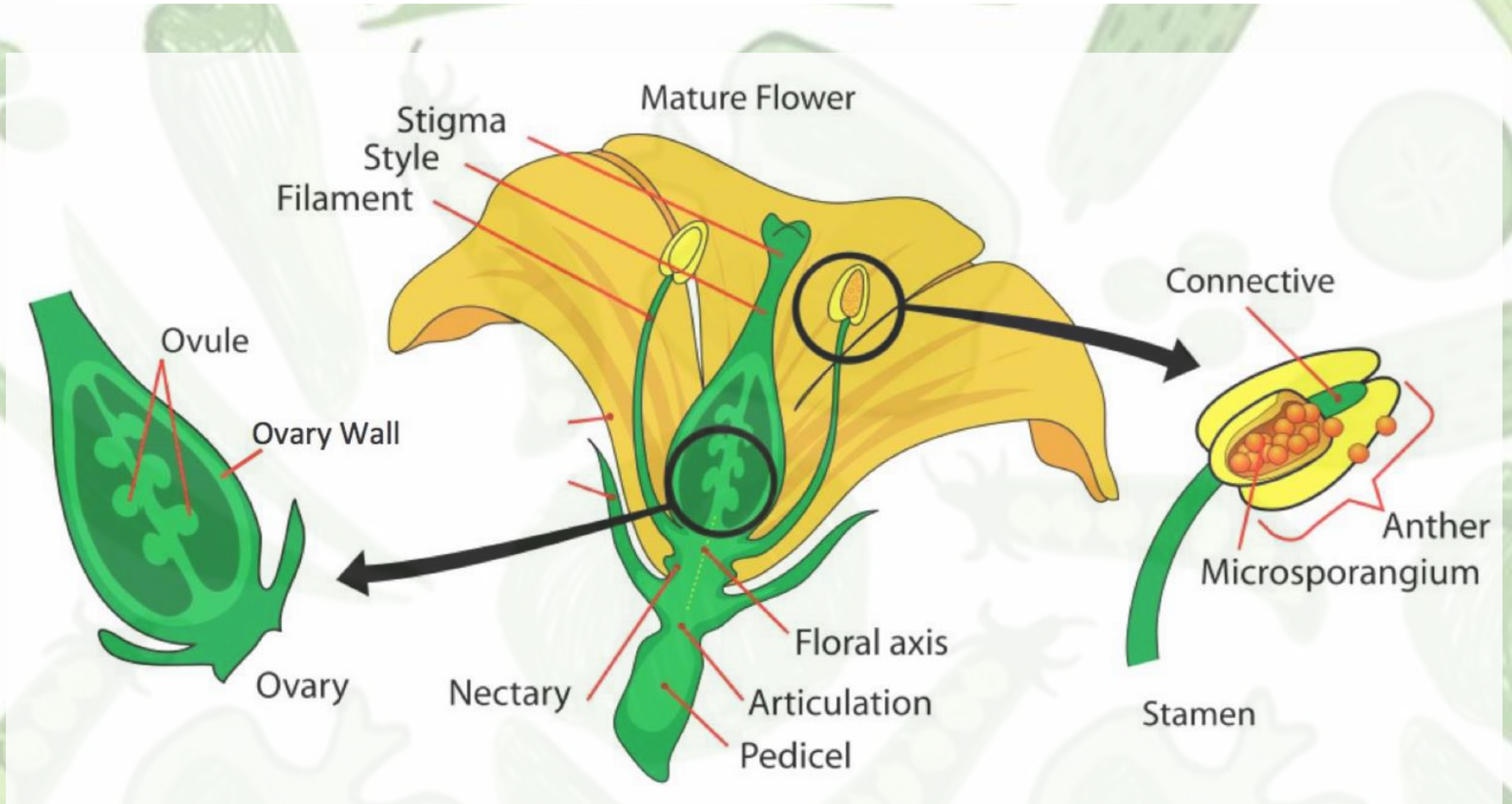
Sexual Reproduction in Plants

Sexual reproduction allows for crossbreeding or sharing of differing genetic material
Sexual reproduction allows greater genetic diversity
Many garden plants and trees/shrubs create seed that is easy to save and collect

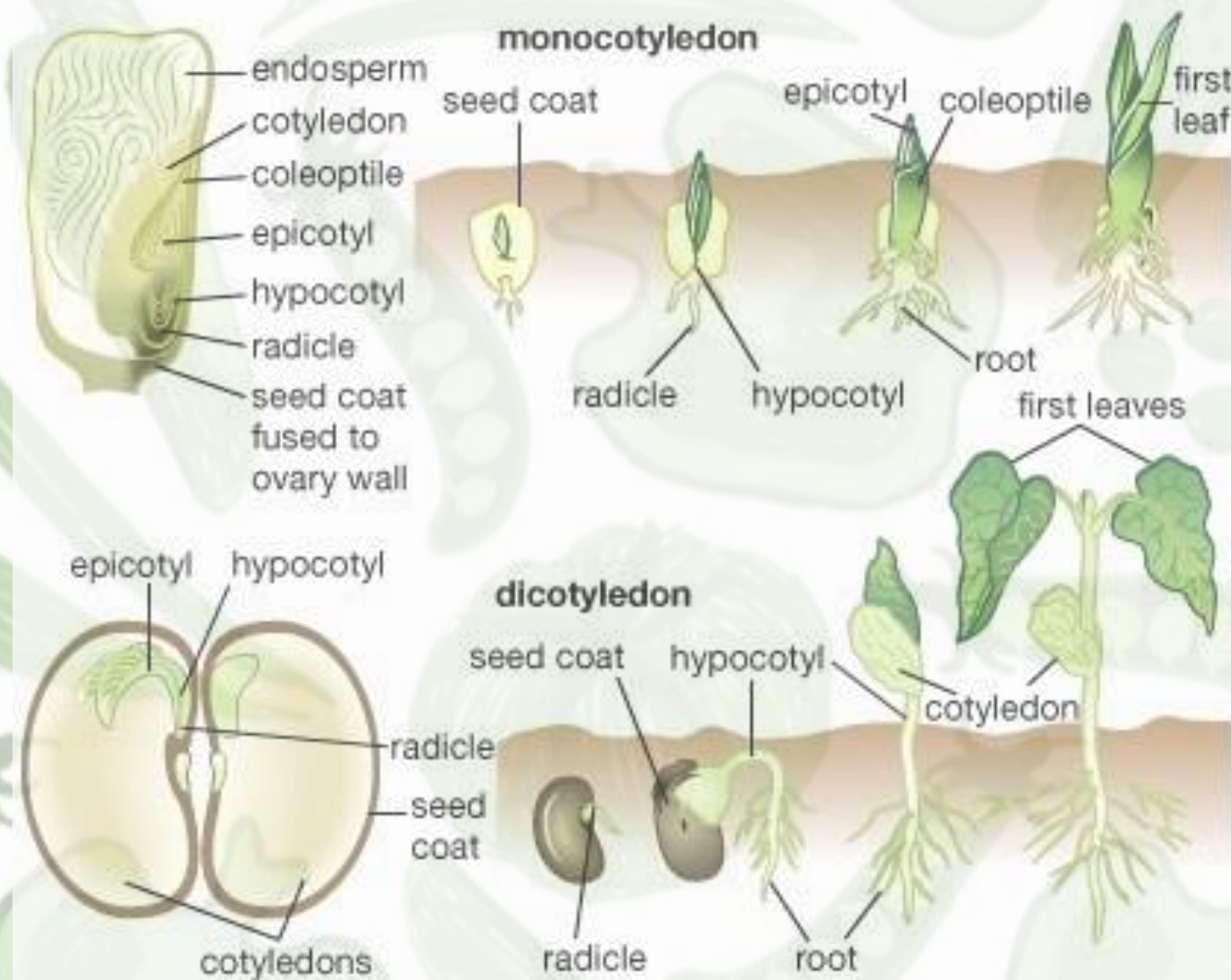


The mustard or *Brassica* family creates seed that is easy to collect

Sexual Reproduction in Plants



Seed Anatomy & Germination



A Note on Seed Dormancy

1. All seeds have some form of dormancy
2. Physical dormancy - Scarification
3. Chemical dormancy - Stratification



Scarification

Need to Break Seed Coat Integrity

1. Physical Methods

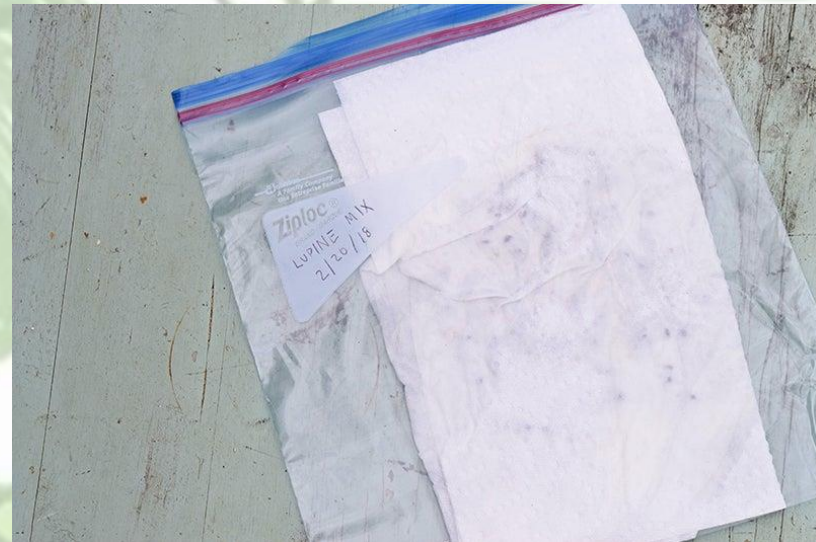
1. Clippers
2. File
3. Sandpaper
4. Heat (e.g. fire)

2. Chemical Methods

1. Sulfuric Acid

Stratification

- Cold moist period
- 4-8 weeks
- 38-45° F



Seed Germination

1. Moisture
2. Temperature
3. Oxygen
4. ~Light



Moisture

1. Too much moisture and the seed may rot
2. Too little moisture and the seed won't germinate or it may germinate and the seedling quickly dies.
3. When the moisture is just right, the seed germinates and the seedling begins to mature

Temperature

Vegetable	Optimum germination temperature
Lettuce	60-68 F. (16-20 C)
Spinach	65-75 F. (18–24 C)
Cucumber	60-90 F. (16-32 C)
Okra	85-90 F. (29-32 C)
Tomato	65-85 F. (18-29 C)
Broccoli	60-80 F. (16-27 C)
Pepper	65-75 F. (18-24 C)

Oxygen



The background of the slide is a repeating pattern of various green vegetables, including pea pods, zucchini, tomatoes, and leafy greens, rendered in a light green, sketchy style.

Light?

1. Majority aren't affected by light
2. Lettuce, Savory, Lemon Balm and Chamomile require light
3. *Allium* (onions, shallots, garlic, chives, leeks) may be inhibited by light

Starting Your Own Seeds for Transplants

1. Extend the Growing Season
2. Wider Selection of Varieties
3. More Control Over Environmental Conditions
4. Save Money

Starting Your Own Seeds for Transplants

- 5. Helps you have the exact number of plants you want to grow.
- 6. Increases Survival Rate
- 7. Reduces Weed Competition

Seed Planting Pointers – Before Planting

1. Select your seed varieties, have them at least 6 weeks before the growing season starts
2. Get your seed trays
3. Get your seed starting mix
4. Have your “seed starting area” selected and ready

Container Possibilities

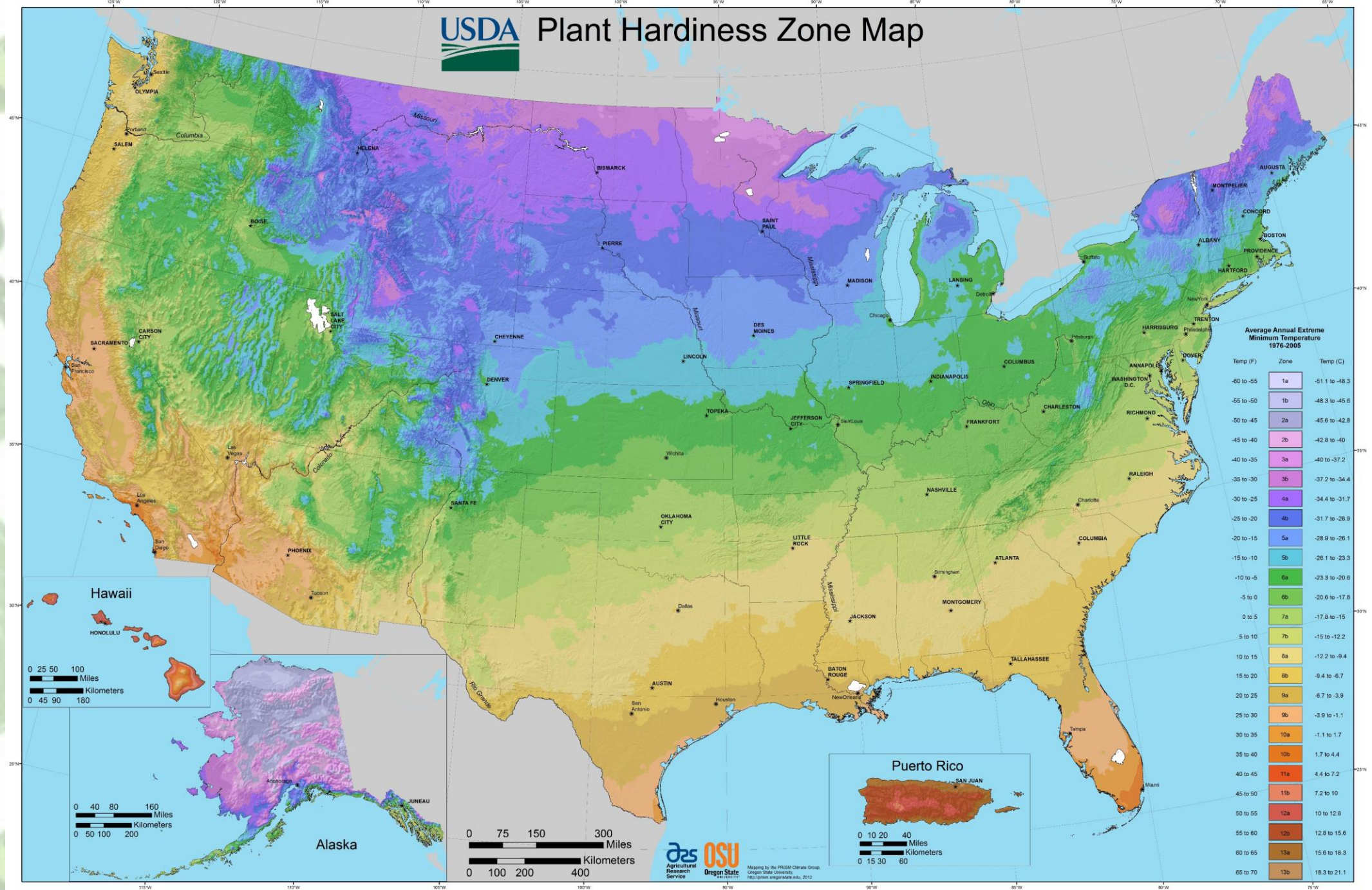
- Flats
- Old cans
- Plastic pots
- Milk jugs
- Egg cartons
- Baby food jars



Drainage is Key!



Plant Hardiness Zone Map



Seed Planting Pointers – At Planting

1. Fill your seed trays with seed starting mix.
2. Moisten the soil, settle the soil
3. Fill out plant label
4. Know seed planting depth and spacing
5. Plant your seed, Water in
6. Move trays to germination area

Seed Planting Pointers – After Seedlings Emerge

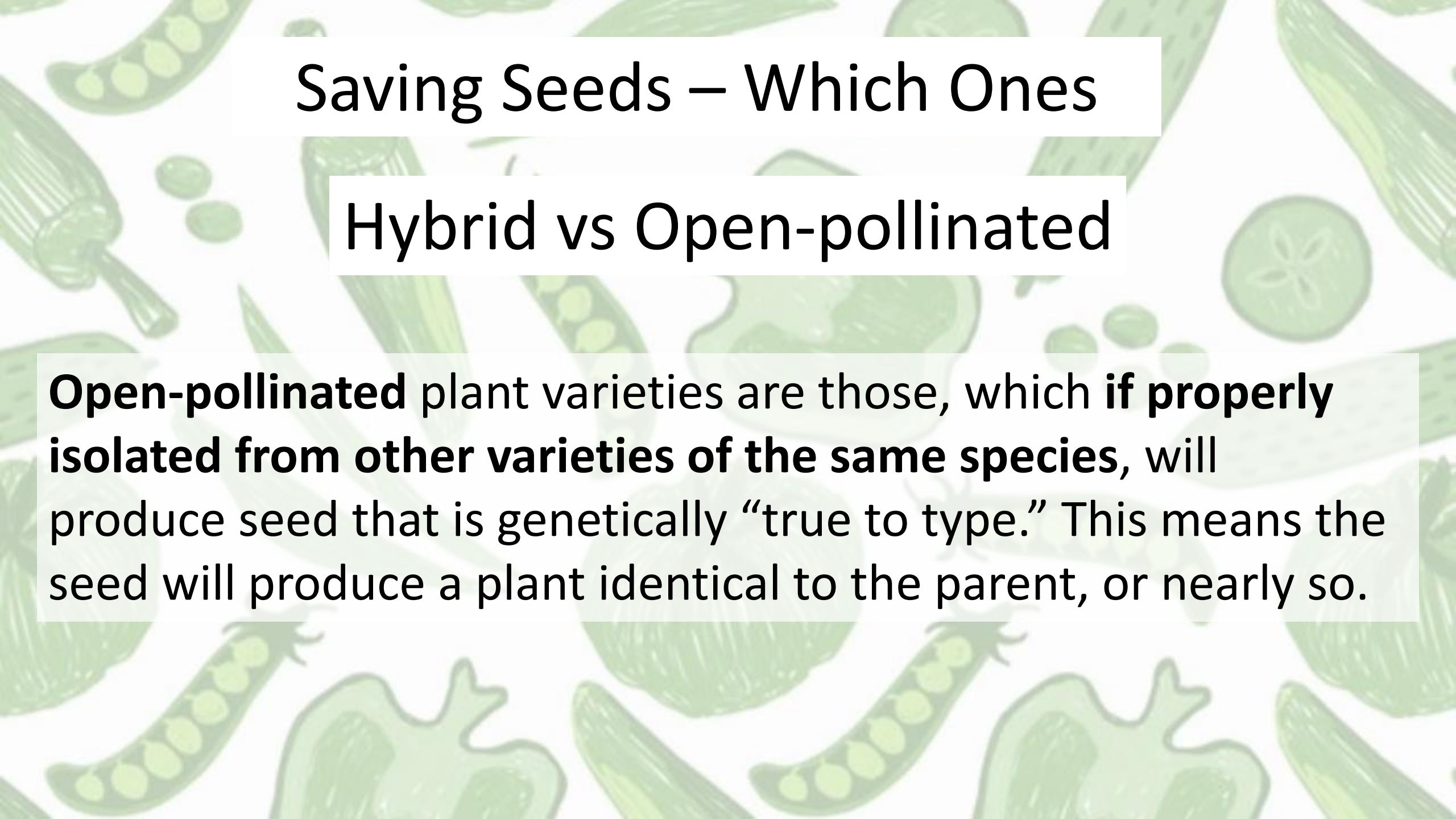
1. Move to sunny location
2. Fertilize lightly
3. Bump up if necessary

Saving Seeds - Why

1. Create new varieties adapted to your growing conditions and tastes
2. Save money
3. Preserve genetic diversity (heirlooms)
4. Retain pest resistance
5. Connect with what you grow



Many heirloom vegetables are worth saving seeds from



Saving Seeds – Which Ones

Hybrid vs Open-pollinated

Open-pollinated plant varieties are those, which **if properly isolated from other varieties of the same species**, will produce seed that is genetically “true to type.” This means the seed will produce a plant identical to the parent, or nearly so.



Cavern (black)

Cavern (orange)

Black Cherry

Pink Cherry

Orange Cherry

Green Zebra

Candy's Old Yellow

Siletz

Black Krim

German Red Strawberry

Black Zebra

Red Zebra

Sweetheart Grape

Green Sausage

Jaune Flamme

Saving Seeds – Which Ones

Hybrid vs Open-pollinated

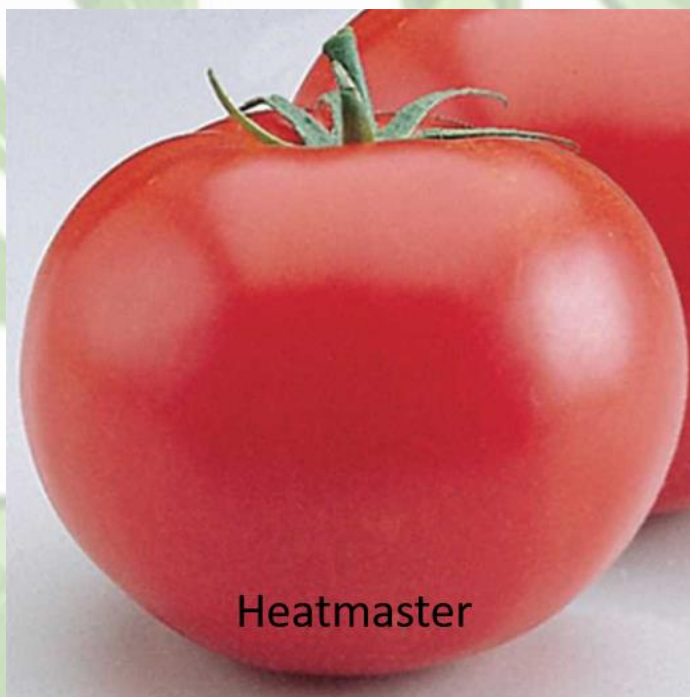
Hybrid plant varieties come from the selective and deliberate cross pollination of two different parent varieties. The goal is to produce offspring with the best traits from each of the parents. The **majority of seed produced by a hybrid plant will not be “true to type”**. Cross-pollination is a process that occurs naturally within members of the same plant species.



Stellar Hybrid



Steakhouse



Heatmaster



Florida 91

Saving Seeds

1. The Fruit and Seed Generally Mature Simultaneously
2. Remove Seed From Fruit
3. Clean the Seed
4. Dry the Seed
5. Package the Seed and Label Completely
6. **Label – Label - Label**

Seed Storage

1. Dry - 6-8% Relative Humidity
2. Cool - 32-45°F (0-7°C)



How Long Can Seed Be Stored

Variety	Avg. Yrs. Under Proper Conditions
Beans	2-4
Broccoli	3-5
Carrots	3-4
Cauliflower	4-5
Corn	1-3
Cucumber	3-6
Eggplant	4-5
Lettuce	1-6
Okra	2-3
Pepper	2-5
Tomato	3-7



Please post all your questions and results to the message board that was emailed to you.

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