

Growing Vegetable Transplants

Annette Meyer Heisdorffer, Ph.D.
Extension Agent for Horticulture Education—
Daviess County



Why Grow Your Own Transplants?

- Grow what you want
- Transplants available when wanted
- Fun to grow



Photo Credit: Mattingly,
Extension Master Gardener

You Will Learn About:

- Basic materials
- When to start planting seed
- How to start seeds
- Growing conditions needed:
 - Light requirements
 - Temperature
- Transplanting
- Hardening off plants



Basic Materials

- Containers
- Soilless media
- Lighting
- Seeds



Photo Credit: Annette Meyer Heisdorffer

Containers: Drainage Hole Needed

- Paper cups
- Styrofoam cups
- Plastic jug bottoms
- Food carryout containers
- Milk carton bottoms
- Plastic pots
- Peat pots
- Peat pellets
- Netted coir pellets
- Plastic trays or container to handle water



Photo credit:
Annette Meyer Heisdorffer

Peat Pots



Trays



Soilless Media

- Seed-starting mix
- Peat pellets
- Coconut fiber—coir netted or compressed
- Potting soil



Photo credit:
Annette Meyer Heisdorffer

Lighting

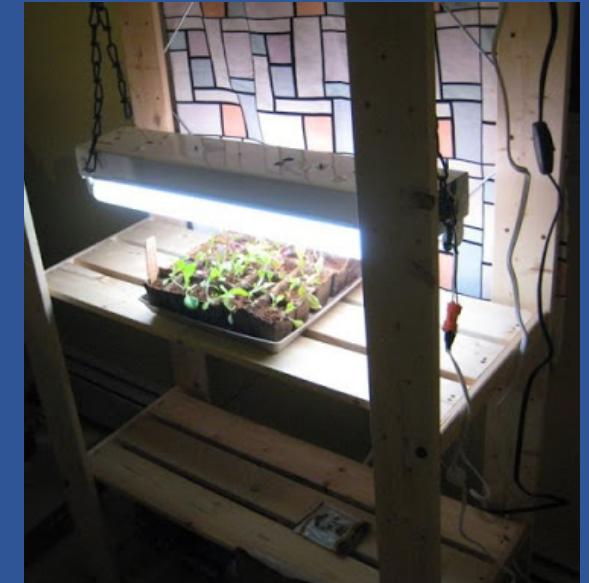
- Windowsill—not enough light



Photo credit:
Annette Meyer Heisdorffer

Lighting

- Cool white fluorescent lamps
- Cool white and warm white fluorescent lamps
- Cool white and plant growth fluorescent lamps
- Plant growth fluorescent lamps
- LED—light emitting diode



Lighting System



Photo Credit: Mattingly,
Extension Master Gardener



Photo credit:
Annette Meyer Heisdorffer

Seeds

- Start with high quality seed
- Look for date on seed package
- Previous year's seed may have a reduction in germination rate—plant more seed
- Determine when to start seed by counting backward from the date wanted to plant in the garden.
- Determine the estimated number of weeks to produce a good transplant for that crop.



Photo credit:
Annette Meyer Heisdorffer



Estimated Time for Starting Seeds— Western Kentucky

Plant	Time	Latest Date	Earliest Date	Garden
Cabbage	5-7 weeks	February 8	January 25	March 15
Broccoli	5-7 weeks	February 23	February 9	March 30
Eggplant	6-8 weeks	March 20	March 6	May 1
Pepper	6-8 weeks	March 20	March 6	May 1
Tomato	4-6 weeks	March 23	March 9	April 20
Cucumber	2-3 weeks	April 6	March 30	April 20
Squash	2-3 weeks	April 6	March 30	April 20

Reference : University of Kentucky, "ID-128: Home Vegetable Gardening in Kentucky"



Estimated Time for Starting Seeds— Central Kentucky

Plant	Time	Latest Date	Earliest Date	Garden
Cabbage	5-7 weeks	February 18	February 4	March 25
Broccoli	5-7 weeks	March 1	February 15	April 5
Eggplant	6-8 weeks	March 29	March 15	May 10
Pepper	6-8 weeks	March 29	March 15	May 10
Tomato	4-6 weeks	April 7	March 24	May 5
Cucumber	2-3 weeks	April 17	April 10	May 1
Squash	2-3 weeks	April 26	April 19	May 10

Reference : University of Kentucky, "ID-128: Home Vegetable Gardening in Kentucky"



Estimated Time for Starting Seeds— Eastern Kentucky

Plant	Time	Latest Date	Earliest Date	Garden
Cabbage	5-7 weeks	February 25	February 11	April 1
Broccoli	5-7 weeks	March 6	February 20	April 10
Eggplant	6-8 weeks	April 3	March 20	May 15
Pepper	6-8 weeks	April 8	March 25	May 20
Tomato	4-6 weeks	April 17	April 3	May 15
Cucumber	2-3 weeks	April 26	April 19	May 10
Squash	2-3 weeks	May 1	April 24	May 15

Reference : University of Kentucky, "ID-128: Home Vegetable Gardening in Kentucky"



Cool-Season Crops

- Tolerate light frost
- Cabbage, broccoli, lettuce, cauliflower, beets, onion, radish



Warm-Season Crops

- Do not tolerate frosts
- Cucumber, muskmelon, squash, watermelon, tomato, pepper, eggplant, green beans



Starting Seeds

- Moisten soilless medium
- Dry medium will not wet appropriately
- Gently place medium in a container
- If using peat pellets, soak in water until fully expanded



Photo credit:
Annette Meyer Heisdorffer



To Sow Seeds

- Broadcast or make a row
 - Tomatoes
 - Peppers
 - Broccoli
- Cover lightly with moist or dry soil

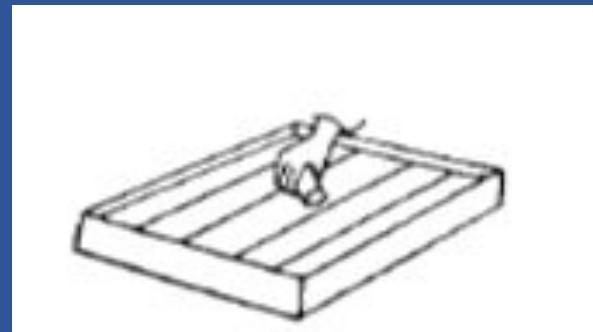
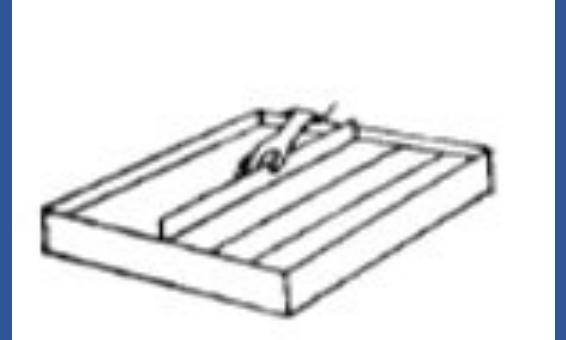


Photo credit: University of Kentucky, "ID-128: Home Vegetable Gardening in Kentucky," p. 8



To Sow Seeds

- Plant in individual pots:
 - Tomatoes
 - Squash
 - Cucumbers
- Cover lightly with moist soil

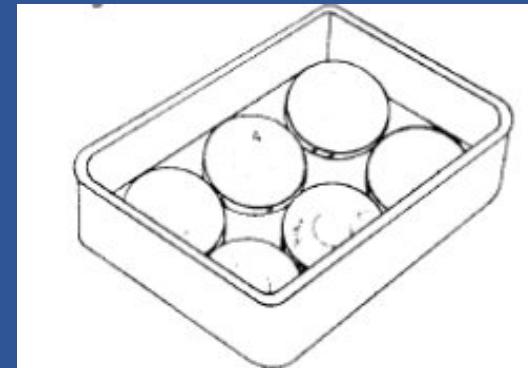


Photo credit: University of Kentucky, "ID-128: Home Vegetable Gardening in Kentucky," p. 8



The Next Steps

- Place container in clear, plastic bag
- Can use clear lids instead of plastic bags
- Keeps seeds moist for germination



Photo credit:
Annette Meyer Heisdorffer



Temperature

- Can use heat mat for germination
- Growing at warm temperatures makes them spindly and weak so remove after germination

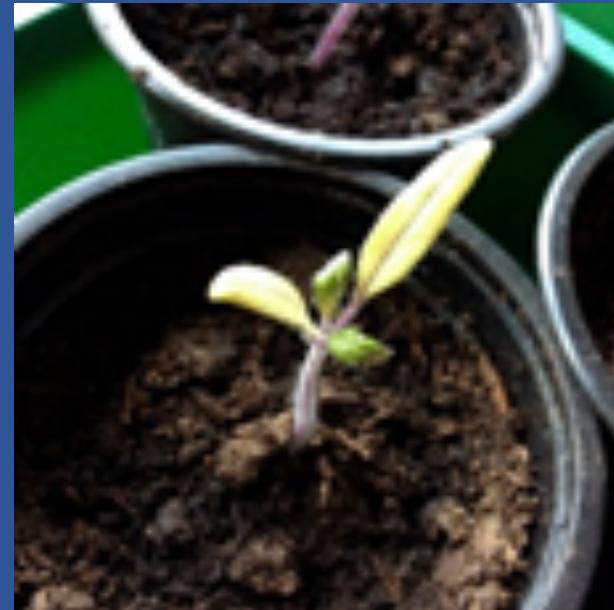


Cotyledons of Emerging Plants

- After seedlings emerge, move to growing area



Photo credit (left picture):
Annette Meyer Heisdorffer



After Germination

- Place in location with enough light
- Windowsill usually not enough light
- Usually need artificial lighting



Photo credit:
Annette Meyer Heisdorffer



Lighting

- Lights need to move up
- Locate lighting 3 to 10 inches above foliage
- Keep them on 12 to 18 hours per day
 - Timer useful
- High intensity results in better quality



Photo Credit:

Top photo: Stogsdill, Extension Master Gardener

Bottom photo: Mattingly, Extension Master Gardener



Spindly Seedlings Due to Lack of Light



Photo credit:
Annette Meyer Heisdorffer



 Cooperative
Extension Service

Kentucky Cooperative Extension

It starts with us

Starting Seeds Indoors

- Temperature:
 - Nights 60 to 68 F and 75 F
 - Good rule-of-thumb: day temperatures 10 degrees warmer than night
 - Cool-season crops: Cooler day/night temps
 - 55 F night and 65 F days
 - Warm-season crops: Higher day/night temps
 - 65 F night and 75 F day



Photo Credit: Stogsdill, Extension Master Gardener



UK Cooperative
Extension Service

It starts with us

Transplanting

- Move to larger container when first set of true leaves form
- Lift seedlings from containers with small flat tool
- Tease apart tangled plants/roots
- Handle by leaves



Fertilizing

- Fertilize seedlings after second true leaf appears
- Use half rate to avoid injuring seedling according to fertilizer label
- Examples: 20-20-20 fertilizer or liquid fish emulsion according to label
- Repeat fertilizer application in two weeks



Harden Off Plants

- Toughen plants to withstand outside environment
- Harden off plants 2 weeks before planting in the garden
- Reduce watering and fertilizer
- Take plants outside during the day in a shaded area and bring in at night for several days if too cold outside at night
- Don't let plants dry out and wilt



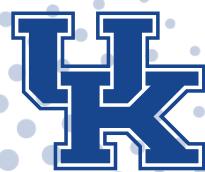
Storing Unused Seeds

- Storing:
 - Keep dry and cool
 - Place in airtight container
 - Label and date
 - Storing at 40 degrees F, low humidity is ideal
 - Do not freeze



Questions?

COOPERATIVE EXTENSION



University of
Kentucky®

*College of Agriculture,
Food and Environment*



**COLLEGE OF AGRICULTURE,
COMMUNITIES, AND THE ENVIRONMENT
COOPERATIVE EXTENSION PROGRAM**

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.

LEXINGTON, KY 40546



Disabilities
accommodated
with prior notification.