

# Planning & sprouting your garden



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## Agenda



- Site selection
- Preparing the soil
- Crop rotation
  - Common vegetable families
- Important planting dates for Greenville
  - Direct seeding
- Starting transplants from seeds
  - Growing seedling indoors
  - Timing your plantings
  - Hardening off

## A good gardening site has



- Full sun for 8+ hours per day
  - Away from trees, buildings or other shade
  - Try for southern or southeastern exposure
- Well-drained soil rich in organic matter
- Level ground
- A nearby water source
- A convenient location, generally close to house

## Prepare the soil



- Early in the spring work the soil
  - Do not work saturated soil – you will compact it
  - Work until soil is granular
  - Till at least 8 inches deep
- Add organic matter to the soil
  - Rotted manure or compost in the spring or fall
  - Mulch during the growing season
  - Cover crops after the growing season
- Adjust pH or fertilize as needed



# Planning where plants will go

- Rotate vegetable families throughout garden
- Be aware that tall plants shade neighbors
- Consider companion planting
  - "Trap" plants for insects
    - ✦ Radishes to alleviate flea beetle pressure on eggplants
  - Flowers to attract beneficial insects
    - ✦ Alyssum, borage, cosmos, etc.
  - Mixing fast-germinating radish seed with slow-germinating carrot seed to mark rows



Flea beetle-damaged radishes



Borage



Carrots & radishes

# Crop rotation



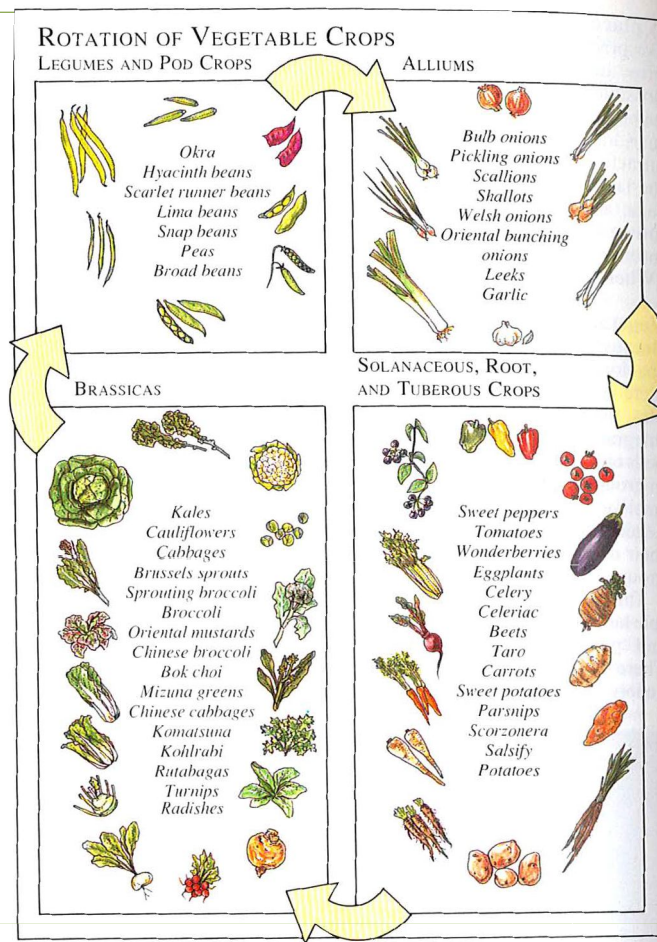
themindfulfoodie.com

- Avoid planting similar crops in same spot more than once every 3 years
- Rotation helps prevent insect and disease buildups
- Legumes fix nitrogen, follow with N-hungry brassicas or potatoes

# Common vegetable families

- Brassicas – cabbage, kale, collards, broccoli, mustard, etc.
- Goosefoot family – beets, Swiss chard, spinach
- Gourd family – squash, melons, cucumbers
- Legumes – peas, beans
- Nightshades – potatoes, eggplant, tomatoes, peppers
- Carrot family – carrots, parsley, celery, celeriac, parsnip
- Alliums – onions, leeks, garlic

## A sample 4-year crop rotation



# Important Greenville planting dates

- Average last frost<sup>1</sup>: May 3<sup>rd</sup>
- Latest frost<sup>1</sup>: May 18<sup>th</sup>

When to plant outside:

May 2015						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Apr 26	27	28	29	30	May 1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	Jun 1	2	3	4	5	6

Plant hardy & frost-tolerant veggies

Plant tender vegetables

Plant hot weather vegetables

<sup>1</sup>[http://www.erh.noaa.gov/cle/climate/info/spring\\_thaw.html](http://www.erh.noaa.gov/cle/climate/info/spring_thaw.html)

## Direct seed or transplant before last frost

- Very hardy vegetables
  - Direct seed/transplant 4-6 weeks before avg. last frost (Mar 22<sup>nd</sup>-Apr 5<sup>th</sup>)
  - Asparagus, broccoli, cabbage, onions, peas, spinach
- Frost tolerant vegetables
  - Direct seed/transplant 2-3 weeks before avg. last frost (Apr 12<sup>th</sup>-19<sup>th</sup>)
  - Beets, carrot, cauliflower, lettuce, parsnip, potatoes, mustard, radish





# Direct seed or transplant after last frost

- Tender vegetables
  - Direct seed/transplant after average last frost ( May 3<sup>rd</sup>)
  - Beans, summer squash, sweet corn
- Hot weather vegetables
  - Direct seed/transplant after latest frost (May 18<sup>th</sup>)
  - Cucumber, eggplant, melons, peppers, pumpkins, tomatoes, winter squash



# Direct seed vs. transplant

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|--|---|
| <ul style="list-style-type: none"><li>• Direct seed<ul style="list-style-type: none"><li>○ Less equipment, cost</li><li>○ Poorer germination rates<ul style="list-style-type: none"><li>✦ Less control on environmental conditions</li></ul></li><li>○ Later crops, shorter season</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Transplant seedlings<ul style="list-style-type: none"><li>○ More equipment or cost<ul style="list-style-type: none"><li>✦ Must start seeds indoors or in greenhouse, OR</li><li>✦ Must purchase starts</li></ul></li><li>○ Better germination</li><li>○ Earliest harvests</li></ul></li></ul> |
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# Starting transplants from seed

- Benefits

- Allows you to grow new, uncommon varieties
- Potential cost savings
- Gives cool season crops a start when garden cannot be worked
- Earlier fruit set
- Transplants have competitive advantage over weeds



## If a greenhouse is not an option,

- You will likely need grow lights

- Most window light produces spindly plants



<http://www.kateskitchen.com/2012/05/spindly-seedlings/> Leggy lettuce

# Equipment for growing starts indoors

- Shelving or PVC
- Fluorescent shop light fixture & tubes
  - Standard “cool white” tubes work
  - 32W (good) or 40W (brighter)
  - Suspended with chains or rope to adjust height of fixture



## Equipment for growing starts indoors (cont.)

- Flats & cells or repurposed plastic containers
  - Ensure containers have drain holes on bottom
  - Sanitize reused containers with dilute bleach
  - Check local sources for new/empty nursery flats
- Soil-less potting mix
- Seeds
  - Greenville & Versailles libraries have seed libraries
- Heating pad (optional)
- Fan (optional)





## How to grow starts indoors



- Lights
  - Hang lights 2-4 in. above growing starts
  - Raise lights as plants grow
  - Keep lights on for 12-18 hrs./day
- Keep temperature close to 70° F
  - 70° F is optimal for many vegetable seeds: brassicas, lettuce, tomatoes
  - Peppers, eggplant, Swiss chard, & gourd family prefer 80° F or higher
  - Spinach may sprout at better cooler temps



## How to grow starts indoors



- If seedlings show signs of damping off, use a fan to circulate air
- Fertilize the starts
  - Commercial fertilizer
  - Liquid fish emulsion
  - Manure/compost tea
  - Mixing worm castings or poultry litter into plug mix



# When to plant seed for indoor starts



Vegetable	Start indoors ____ weeks before average last frost	Start date for Greenville	Transplant into garden date for Greenville
Arugula Broccoli Cabbage Cauliflower Collards Kale Head lettuce Spinach	8	Mar 8	Apr 12-19
Peppers Eggplant Tomatoes	6-8	Mar 8-22	May 18- Jun 1
Swiss chard Leaf lettuce	6	Mar 22	May 3
Cucumber Melon Squash Watermelon	4 or less	Apr 20 or later	May 18- Jun 1

# Harden off seedlings started indoors



- Plants need to adapt to harsher conditions
- Leave plants outside during day
  - Increase time each day
  - Avoid extreme weather
- Leave outside overnight after a few days
- Plant into prepared bed



## This spring's experiment: a window cold frame

- With a too crowded bathtub, I convinced my husband to build a window cold frame
  - A mini-greenhouse used to extend growing season
  - Locate in well-drained south-facing area



Thank you!

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## References & resources



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Fizzell, James A. Guide to Ohio Vegetable Gardening. 2007. Brentwood, TN: Cool Springs Press.

Home Vegetable Gardening in Kentucky (ID-128). University of Kentucky.

DIY PVC stand: <http://www.vegetablegardener.com/item/10376/diy-pvc-grow-light-stand>

Guide to starting seeds indoors:  
<http://www.motherearthnews.com/organic-gardening/starting-seeds-indoors-zm0z12djzsor.aspx>