



Seeds for Healthy Eating Habits

Connecting the Curriculum to the Garden, Classroom and Cafeteria



SECTION 3

Starting a Garden

Planning a Vegetable Garden

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URI Master Gardener Class of 2014



Cooperative Extension

*Bringing science-based
University resources to
Rhode Islanders
since 1914.*

THINK BIG  WE DO™



THE
UNIVERSITY
OF RHODE ISLAND

Our Guiding Principles

1. We are dedicated to Rhode Island's people and their communities. We are committed to improving their quality of life, their livelihoods, and the health of our natural environment.

2. We believe in social justice. Collectively, we strive to deepen our cultural understanding and proficiency while building capacity to create inclusive experiences to address diverse stakeholder needs.

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Educating residents in environmentally-sound gardening practices through the dissemination of factual, research-based information.



Site Selection

Sunlight

Soil Condition

Water access



Full Sun

At least 6 hours daily

Ideal for fruit bearing vegetables

- tomatoes
- cucumbers
- eggplant
- peppers
- summer squash
- corn
- beans
- broccoli
- cabbage



Source: greenupgrader.com

Partial/Dappled Shade

3 to 6 hours of sun daily

For root crops:

- Beets
- Radishes
- Carrots
- Cauliflower
- Scallions
- Winter Squash
- Onions
- Peas
- Spinach

For leafy vegetables:

- Lettuce
- Chard
- Kale



vegetablepatchreimagined.blogspot.com

Soil

The Single
Most
Important
Ingredient for
a Good
Garden



What's pH? Why do I Need to Know?

Soil pH generally refers to the degree of soil acidity

- RI native soil pH is typically in the 4's to 5's range
- Most vegetables require 5.5 to 7.0 to yield a good crop
- But aim low for potatoes 4's and 5's



Important 1st Step: Test Your Soil

- Free pH testing possibly available from April to Sept
- Check the URI Master Gardener web site at <http://web.uri.edu/mastergardener/> and click on UPCOMING testing sites and dates or <http://events.uri.edu/event/ph-soil-testing>

Important 1st Step: Test Your Soil

For a complete laboratory test to determine:

- Nutrients
- Lead levels
- Soil characteristics

Contact:

University of Connecticut: soiltest.uconn.edu/sampling.php

University of Massachusetts Soil Labs: soiltest.umass.edu/ordering-information

Both laboratories charge a nominal fee for this service

Soil and Fertilizer are Essential

A blended soil consisting of:

- 1/3 compost
- 1/3 peat moss or Coco Coir
- 1/3 coarse vermiculite



Barginbriana.com

Fertilizer Choices

Inorganic:

NPK 10-10-10 & 5-10-5 fertilizer

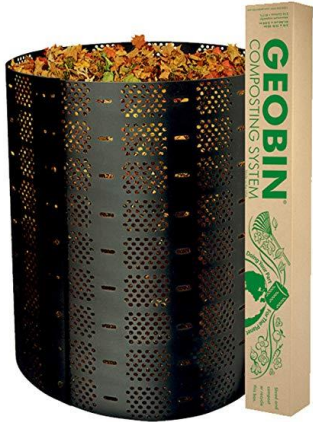
- Nitrogen (N) for leaf growth
- Phosphorus(P) for roots, early plant growth and seed formation
- Potassium (K) for plant vigor, disease and stress resistance

Organic:

- Such as bone meal
- Fish emulsion – use ½ strength for seedlings

Add Compost

- Helps sandy soil hold water & nutrients
- Helps clay or heavier soil drain and aerate
 - Supports beneficial microorganisms



Water

- Water in the morning, not at night
- Place beds near a source of water
- Vegetables need 1" to 2" of water a week
- Irregular watering may cause disease (e.g. blossom end rot) or cracked plants and will decrease yields
- Water when top 2" of soil is dry but before plants wilt
- Water until soil is moist 5-6" down



Photo courtesy of T.A. Zitter, Cornell University, Ithaca, NY



Drip Irrigation reduces water loss and disease

- Drip irrigation conserves water
- Helps reduce weed growth and disease
- Line needs to be 12" or less from base of plant
- Works well under mulch
- A soaker hose can be attached directly to a faucet - \$11-\$13 for 50'
- Use a timer if you have trouble remembering to turn the water off!





Site Selection: Soil

- Well-drained
- Open to good air movement
- Add lime or nutrients as indicated by a test
- Try raised beds if native soil is too rocky, contaminated or on a slope (level the beds)



Helpful tips

- If using raised beds, line the bed bottom with $\frac{1}{4}$ " galvanized steel hardware cloth to keep out burrowing animals such as groundhogs
- Soil depth should be a minimum of 8 inches. Plants need at least a 8 to 12-inch rooting zone, so **12 inches** is ideal.
- Fencing will keep out deer and other critters
Note: deer can jump 7 ft. Make the fence high!
- Maximize light by placing tall crops where they won't block small plants



gardenersupply.com

- Source: www.extension.iastate.edu

Helpful tips



“Oh, hi! I was just, um, doing my morning workout. I swear!”

Crop Selection: What to Grow



Before you plant....

Top 5 Questions to Ask Yourself

1. What do I like to eat?

Make a list and rank. Just for dinner or canning/freezing?

1. How much time can I give to tending the garden?

It should be fun, not a chore

1. How much light do I have?

At least 6 hours of sunlight daily for fruit-bearing veggies

1. How much should I plant?

Figure out what 8 running feet will yield-don't overplant

1. How much space do I have?

If a small space, avoid sprawlers such as winter squash



Seeds or Transplants?



Starting from seed

- Less expensive
- More variety
- Seeds tend to make stronger, more resistant plants
- You can determine germination qualities, plant vigor, insect and disease problems
- Less risk of spreading disease or insects with seeds

Easy Vegetables to grow from seed are Lettuce, Radishes and Green Beans.

Transplants

- Makes sense for busy gardeners
- You don't have space or time to plant and grow seeds
- All set and ready to plant – no need to thin out

Any transplant would work if it fits in your school season timeline.

RHODE ISLAND PLANTING CALENDAR FOR FRUITS AND VEGETABLES

Fruit or vegetable	Days until harvest	February		March		April		May		June		July		August		September		October	
		1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15
ASPARAGUS (buy crowns)	1–2 Years						CR	CR	CR										
BEANS, BABY LIMA	60–100								S	S	S	S	S						
BEANS, PINTO	60–80								S	S	S								
BEANS, SNAP	60–80								S	S	S	S	S	S					
BEETS	60–80					S	S	S	S	S	S	S	S	S	S				
BLACKEYED PEAS	90–120								S	S	S								
BOK CHOY	45							S	S						S	S	S		
BROCCOLI	60–90 from transplant					I			T				I	I	T	T			
BRUSSEL SPROUTS	100–120 from transplant								I				T						
CABBAGE	80–90 from transplant			I			T				I	S	T	S					
CABBAGE, CHINESE	45 from transplant					I		S	T	S			I	S	T	S	S		
CARROTS	60–80				S	S	S	S	S	S	S	S	S	S					
CAULIFLOWER	80 from transplant					I			T	I	I	T	T						
CELERY	90 from transplant			I					T	T									
CHARD	60					S	S	S	S						S	S			
CORN, SWEET	70–90							S	S	S	S								
CUCUMBERS	60–90					I			T	S	S	S							
EGGPLANT	60 from transplant				I	I					T								
ENDIVE/ESCAROLE	80–120				S	S							S		S				
GARLIC	5 – 7 months																		C
KALE	60–90			I	S	S	T	S					S	S	S	S			
KOHLRABI	45–60 from transplant					S	S	S	S	S	S	S	S	S	S	S	S		

LEGEND: C = Plant cloves CR = Plant crowns I = Start seeds indoors S = Direct-seed in garden T = Transplant seedlings started indoors to garden

NOTES: Dates are based on final frost on May 15 and first frost on October 15.

Be aware of local microclimates that may make your garden color/warmer and alter frost dates. Transplants should be exposed to the outdoors for increasing periods over several days before planting ("hardened off").

When to Plant Outside



- Timing is crucial
- Know last and first frost dates (average dates!)
- Hardening off – the weaning process
- Wait until night temps are above 50
- Use season extenders

Hardiness Zone for RI:

6b for most of the state (-5 to 0)

Westerly and Newport – 7a (0 to 5)

First and last frost dates for RI – October 15 – May 15

When to plant outdoors?

Cool Season plants grow best 55 - 70°

- Plant spring crop in April
- Plant fall crop in August

Spring or fall: Lettuce, cabbage, broccoli, cauliflower, spinach, chard, beets, carrots, radishes, green onions, turnips, peas, greens

Spring only: Potatoes, bulb onions, leeks, parsnips, celery/celeriac, rutabaga, Brussels sprouts



When to plant outdoors?

Warm season plants grow best 65 - 85°

- Direct seed May to July
- Transplants move outside after last frost (usually middle of May)

Warm season direct seed or transplant:

Cucumber, summer squash, winter squash, pumpkin, beans, corn

Warm season transplant only:

Tomatoes, peppers, eggplant, tomatillos, melons, watermelons, sweet potato, okra, basil

*Garlic is planted in the fall along with flower bulbs



Hardening Off Vegetable Seedlings

- Begin hardening transplants 1-2 weeks prior to setting out plants in your garden.
- Place in a shaded, protected spot on warm days, bring them in at night. Each day, increase the amount of sunlight the transplants receive.
- Don't put tender seedlings outdoors on windy days or below 45° F – air temp.
- Reduce the frequency of watering to slow plant growth, but don't allow plants to wilt.
- A cold frame or hoops and plastic provides an excellent environment for hardening off transplants.
- After hardening, tomato plants can usually tolerate light and unexpected frosts with minimum damage.



A Few Rules for Planting Transplants

- Don't plant too early! Veggies need soil to be a minimum of 45 degrees to germinate.
- Cool, cloudy weather is best for planting
- “Starter” fertilizer helps establishment – high in phosphorous
- Keep mature plant size in mind
- Water plants promptly
- Shield from sun and wind
- Protect from slugs and cutworms



Weed Control

- Weed: *A plant that is growing where you don't want it to grow*
- Mulch to block sunlight
 - Grass clippings
 - Straw (not hay)
 - Newspaper
 - cardboard
 - Pine needles
 - Pine-bark



Straw Mulch: Easy for children



Consider Gardening in Containers



Containers for Vegetables

- Smaller containers will dry out easily and may need daily watering. Use trays or saucers under them or lift pots up on “feet” so as not to rot out wood.
- You want to consider the depth of containers: shallow containers 4-6”. You can grow greens (spinach, lettuces, arugula) and some herbs.
- Deeper containers 1- 10 gallons you can grow beans, peppers, tomatoes.



Drainage

- Make sure your container has holes in it for extra water to drain out. Without drainage plants will become waterlogged and die off.
- A container without holes will allow roots to sit in water and rot.
- If a hole is too big I add landscape fabric in the bottom. This will keep soil in and let water drain out. You want the water you add to go to the roots not on the ground or deck. Use a tray under the container so you don't stain your deck or patio.

Vegetables in Containers

Suggested Container Grown Vegetables:

*Name (Container Size, Number of Plants) – *Varieties*

- [Broccoli](#) (2 gallons, 1 plant) – *Packman, Bonanza, others*
- [Carrot](#) (1 gallon, 2-3 plants. Use pots 2 inch deeper than the carrot length) – *Scarlet Nantes, Gold Nugget, Little Finger, Baby Spike, Thumbelina*
- [Cucumber](#) (1 gallon, 1 plant) – *Burpless, Liberty, Early Pik, Crispy, Salty*
- [Eggplant](#) (5 gallons, 1 plant) – *Florida Market, Black Beauty, Long Tom*
- [Green Bean](#) (2 gallons minimum, space plants 3 inches apart) – *Topcrop, Greencrop, Contender, (Pole) Blue Lake, Kentucky Wonder*
- [Green Onion](#) (1gallon, 3-5 plants) – *Beltsville Bunching, Crystal Wax, Evergreen Bunching*
- [Leaf Lettuce](#) (1 gallon, 2 plants) – *Buttercrunch, Salad Bowl, Romaine, Dark Green Boston, Ruby, Bibb*
- [Parsley](#) (1gallon, 3 plants) – *Evergreen, Moss Curled*
- [Pepper](#) (5 gallons, 1-2 plants) – *Yolo Wonder, Keystone Resistant Giant, Canape, Red Cherry (Hot), Jalapeno*
- [Radish](#) (1 gallon, 3 plants) – *Cherry Belle, Scarlet Globe, (White) Icicle*
- [Spinach](#) (1 gallon, 2 plants) – *Any cultivar*
- [Squash](#) (5 gallons, 1 plant) – *Dixie, Gold Neck, Early Prolific Straightneck, Zucco (Green), Diplomat, Senator*
- [Tomato](#) (5 gallons, 1 plant) – *Patio, Pixie, Tiny Tim, Saladette, Toy Boy, Spring Giant, Tumbling Tom*
- [Turnip](#) (2 gallons, 2 plants) – *Any cultivar*

Soil

- Use a soilless blend that will retain lots of moisture and resist compaction. A fluffy blend provides roots with more oxygen and nutrients.
- Soilless blend is a mix of peat moss or coco coir, perlite, vermiculite and sand. I add compost and granular fertilizer. Mix all together and moisten.
- Garden soil can carry diseases and compacts so oxygen and water will not move freely through it.

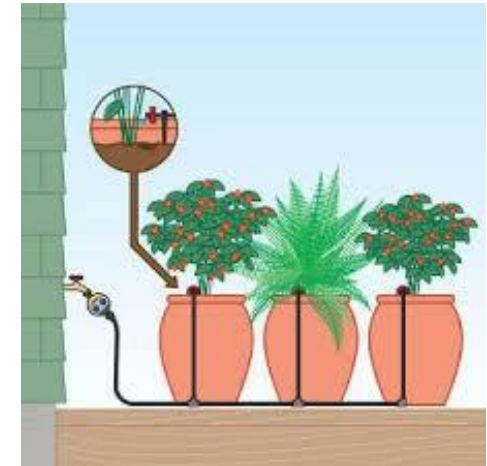


Clementine Box with Various Lettuces



Watering

- Consistent moisture is best. To test for moisture stick your finger in soil up to first knuckle. If it feels dry, WATER.
- You can use self-watering containers or a drip system if you do not like watering. You water less BUT they are more expensive.
- Water early in the morning by 10:00AM. Water at the base of the plant for less evaporation. At height of the summer you may have to water 2x a day. If you have to water in the afternoon do it as soon as possible.
- I place a layer of woodchips on the tops of my containers to save the water I put in them.



Fertilizer

- Fertilizer: Don't over fertilize. I fertilize 1x week at quarter strength with a liquid fertilizer.
- I use fish emulsion for vegetables and Osmacote for flowers.
- Osmacote – Slow release fertilizer. Use once lasts for three months.
- If you follow these steps you will have healthy plants and beautiful looking containers.
- Container Gardening takes vigilance, time and attention, but it can be rewarding and productive.



Cooperative Extension Gardening Resources

Gardening & Environmental Hotline

gardener@uri.edu

Learn at Home Webinar Series

Tues. at 7pm Fri. at noon

Gardening Resources

<https://web.uri.edu/mastergardener/gardening-resources/>





Become a Master Gardener!

Online application June - Nov 1
Core Training is held Jan.- April

uri.edu/mastergardener/





CONTACT US!

(401) 874-2900

CoopExt@uri.edu

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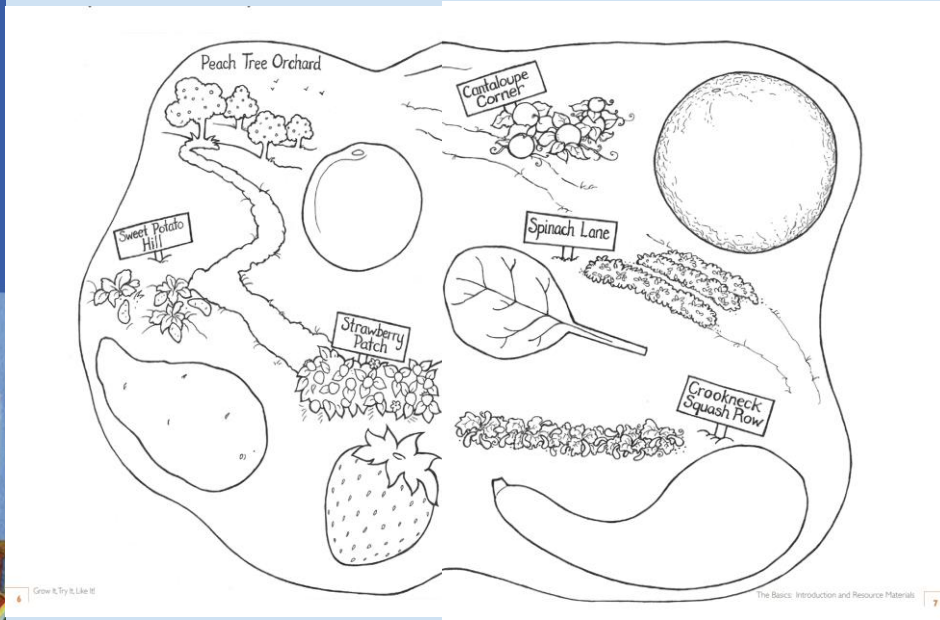
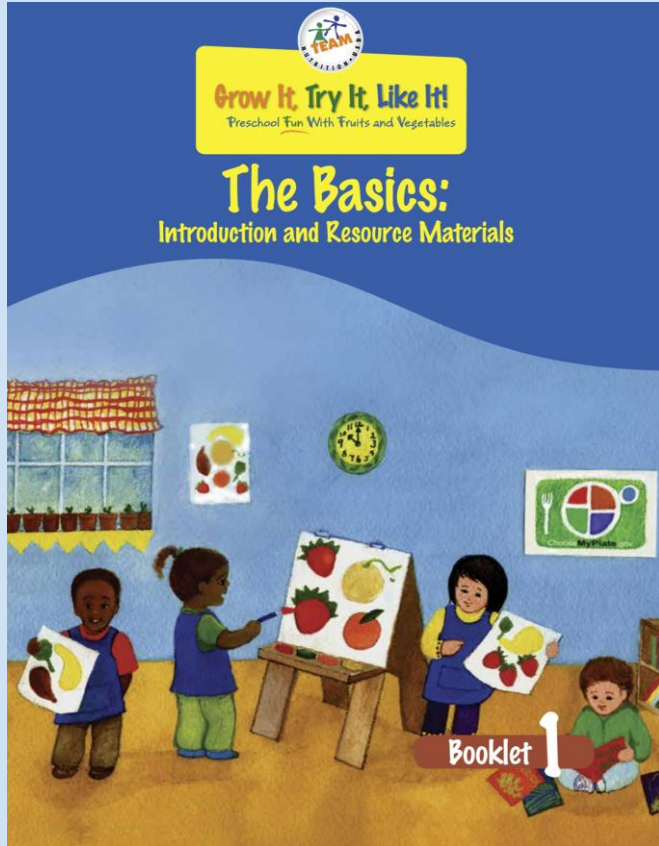


@URICoopExt



Connecting to the Classroom and Cafeteria

Get to know Grow it, Try it, Like it Curriculum



Connections for Learning

Connecting growing and food education to the cafeteria, classroom, and gardens within each domain is the best way to solidify learning

Cognitive: Learning about the food in the classroom curriculum

Physical: Seeing and eating healthy foods on the plate at meals

Social Emotional: Trying new foods, sharing responsibility in the garden



Taste Testing

Taste testing in the classroom is a great way to utilize the garden and the GiTiLi curriculum



Taste Testing Fundamentals

1. Prepare To Grow.
2. Sow Seeds of Success
3. Seed and Re-seed.
4. Start in Fertile Ground.
5. Offer Bites, Not Bushels
6. Know the Growing Season.



Connecting to the Cafeteria



Did you know that CACFP encourages
local foods in center meals??

See CACFP 11-2015: Local Foods in the CACFP with
Questions and Answers for more information on
regulations for procuring local foods for your center!



Connecting to the Cafeteria

- Choose one fruit or vegetable to highlight each season or cycle to compliment classroom learning
- Prepare the item in a variety of ways (roasted, boiled, stir fried, with sauce, etc.) allowing children multiple opportunities to try
- Plan your choices with seasonality in mind
 - Supply for a fruit or vegetable is highest during its peak season
 - Buying at peak season also means lower prices
 - Peak season also means more flavorful fruit and veggies making kids more likely to try them!




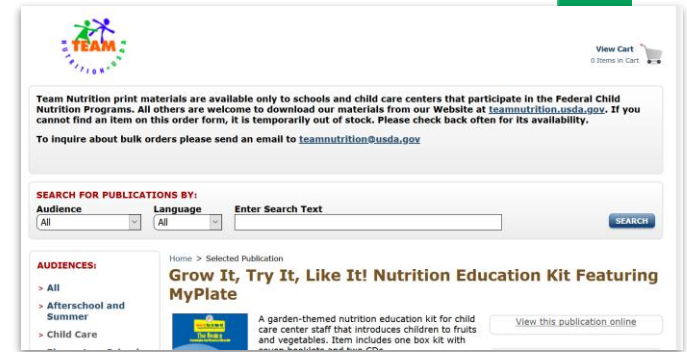
Incorporating GiTiLi Produce into CACFP Meals



RI Crop Availability	Fall	Winter	Spring	Summer
Crookneck Squash	X (early)			X
Spinach	X		X (late)	X
Sweet potato	X	X		X (late)
Cantaloupe	X			X
Peach	X (early)			X (late)
Strawberry				X

How to order/ access materials

To download or order the curriculum, go to www.teamnutrition.usda.gov and click on “Order Team Nutrition resources” 



For staff training resources (facilitator guide, training slides, PD approval template & RIELDS alignment guide), go to www.ride.ri.gov/cnp/NutritionPrograms/USDA TeamNutrition.asp

X

Thank you!



RIDE Child
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FARM FRESH RI
Farm to School & Community Education

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