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GROW IT • EAT IT

A MASTER GARDENER PROGRAM

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Office of the Assistant Secretary for Civil Rights
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U.S. Department of Agriculture
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MASTER
GARDENER 

Welcome

The mission of the University of Maryland Extension Master Gardener Grow It Eat It (GIEI) Program is to promote backyard and community food production.

Master Gardeners teach classes and workshops, develop demonstration gardens, and educate Marylanders on how to produce their own affordable and healthy food using sustainable gardening practices in their homes, communities, and school gardens



What are HGIC and Ask Extension?

The University of Maryland Extension [Home and Garden Information Center \(HGIC\)](#) includes:

- Gardening & IPM pages
- [Maryland Grows blog](#) (also [Extensión en Español - Blogs de Extensión de la Universidad de Maryland \(umd.edu\)](#))
- HGIC YouTube channel [UMDHGIC - YouTube](#)
- HGIC Quarterly Newsletter - Subscribe!
- Social Media pages
- Monthly Tips [Monthly Gardening Tips | University of Maryland Extension \(umd.edu\)](#)
- Ask Extension- answers to garden and pest questions





Charles County Master Gardeners
GROW IT EAT IT (GIEI) Education Project Team

*Tina Bailem
Michelle Chenault
Beth Grem
Lori Guido*

*Kathy Jenkins
Meg MacDonald
Kay Redman
Terry Thir*



UME Master Gardener Spring 2026 Basic Training

Combine your love of plants, people, & the environment to help your community solve problems & make sustainable gardening decisions.

Master Gardener Volunteers receive 40 hours of hands-on and virtual instruction in their county of residence to become a volunteer horticultural educator and teach their community through workshops, presentations, demonstrations, and more.

Feb 3 - May 5, 2026
Virtual classes on Tuesdays 6-9pm
Hybrid local schedule

Accepting applications in select counties now!
Apply by December 1 (earlier in some counties)
go.umd.edu/MGJoin

This institution is an equal opportunity provider.

If you need a reasonable accommodation to participate in this training, please contact your local University of Maryland Extension office

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MASTER
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UME Master Gardener Basic Training Sample Topics

Orientation, Volunteer Policies & Skills
Entomology & Invasive Insects
Plant Pathology & Diagnostics
Botany
Integrated Pest Management & Pesticide Safety
Soils
Plant Nutrition & Pruning
Ecology
Woody & Herbaceous Plants
Bay-Wise & Conservation Landscaping
Turf & Turf Alternatives
Native & Invasive Plants
Vegetable & Small Fruit Gardening

Cost: \$200, The cost of the training helps pay for the handbook (\$90 value + shipping), and the materials and costs needed to teach and administer the program at the county and state level.

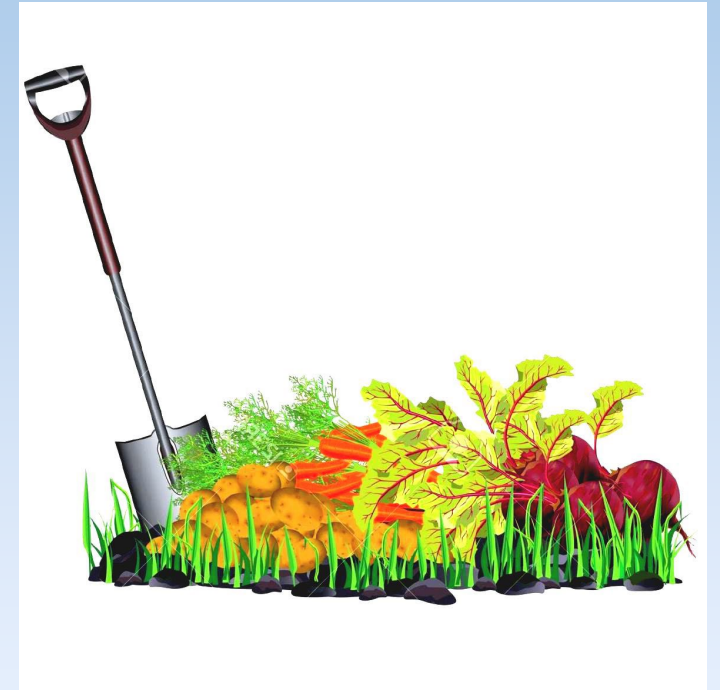
Tentative Agenda

- 10:00 - 10:05 am - Introductions - Maryland's HGIC
- 10:05 - 10:20 - Finishing the Summer garden
- 10:20 - 11:00 - Planting Fall vegetables
- Break - 11:00 - 11:10
- 11:10 - 11:30 - Extending the Season with Plant Protection
- 11:30 - 11:40 - Cool crop Pests
- 11:40 - 12 - Questions/Discussion



Late Summer in the Vegetable Garden - What's Next?

- Finish up the summer garden - harvest veggies and herbs
- Plant cool weather crops
- Plan and implement strategies for extending the Fall gardening season



Finish Summer harvesting

Harvest any remaining warm season vegetables; These include tomatoes, peppers, cucumber, squash, melon

Harvest any tender herbs (e.g. Basil) and use, dry, or freeze them.



Photo - Canva, SD State University

Full size green tomatoes, can finish ripening indoors. Placing them in a bag with an apple or banana (which release ethylene gas) will speed ripening

NOTE Carrots can be over-wintered in the garden by covering the bed with a deep straw or leaf mulch. Pull carrots through the winter as needed

Remove Summer vegetable debris

Remove diseased or insect-infested plant material that may shelter overwintering states of these pests. This will reduce the potential for disease problems in next year's garden.



Early Blight



Squash bug



This debris should be bagged and put out in the trash and NOT put in the compost pile. Only really hot compost piles (actively managed) will kill off potential problems.

Can Summer Vegetable debris stay?

Plants that are not diseased or harboring pests can provide valuable organic matter for next year

Pull Plants and run a mower over them so they are chopped into smaller pieces and spread over the ground on the garden. They will decompose over the winter, returning nutrients to the soil.

These plants can also be composted, and the finished compost used next season.

NOTE: Be sure the plants you compost are free of diseases and pests. In our warm, humid climate, blight, mildews, and viruses are very common by the end of the summer. If in doubt, bag it and put in the trash.

What about "leaving the leaves" and plant debris for wildlife ?

This recommendation is for

- fallen (not diseased) tree leaves
- flower stalks (especially native flowers)
- native grasses

The listed above provide seeds, shelter, and insect larva for hungry birds and some beneficial insects.



Photo - OK State University



**But debris from
VEGETABLE Gardens
requires more careful
inspection and
consideration.**



Saving seeds from your Summer Garden

- Save seeds from healthy, fully ripe fruit from OPEN POLLINATED Cultivars
- Seeds saved from hybrid cultivars will not "come true" (resemble parent plant) when planted out the following season.
- Seeds saved from non-hybrid (open-pollinated) cultivars of plants that normally cross-pollinate (cucurbit, corn) MAY produce off-types when planted the following year.
- Tomatoes, peppers, beans and peas are good choices for seed saving. They have self-pollinating flowers and seeds that require little or no special treatment before storage.



Photo - Canva, SD State University

Information on saving seeds can be found in the resources slide at the end of this presentation

What to Do with the Summer Garden Now?

Plant Fall/Winter Vegetables!

Common cool-season vegetables:

beets
broccoli
brussels sprouts
cabbage
carrots
cauliflower
Swiss chard
kale

leeks
lettuce
onion
parsnips
Peas
radishes
spinach
turnips



Photo NC State Univ. Extension

2025 -Year of the HERBS

This year in the Master Gardener Grow It Eat It program, we are celebrating all things herbs!

Herbs are obtained from the leaves of herbaceous (non-woody) plants. They are used for savory purposes in cooking and some have medicinal value.



Spices are obtained from roots, flowers, fruits, seeds, or bark of woody or herbaceous plants. Spices often are more potent and stronger flavored than herbs

Many herbs, such as Parsley, Chives, and Cilantro, can tolerate cool temperatures especially with protection.

Other herbs, like Dill, have a short Days to Maturity (DTM), and can be planted in late summer and harvested before frost.

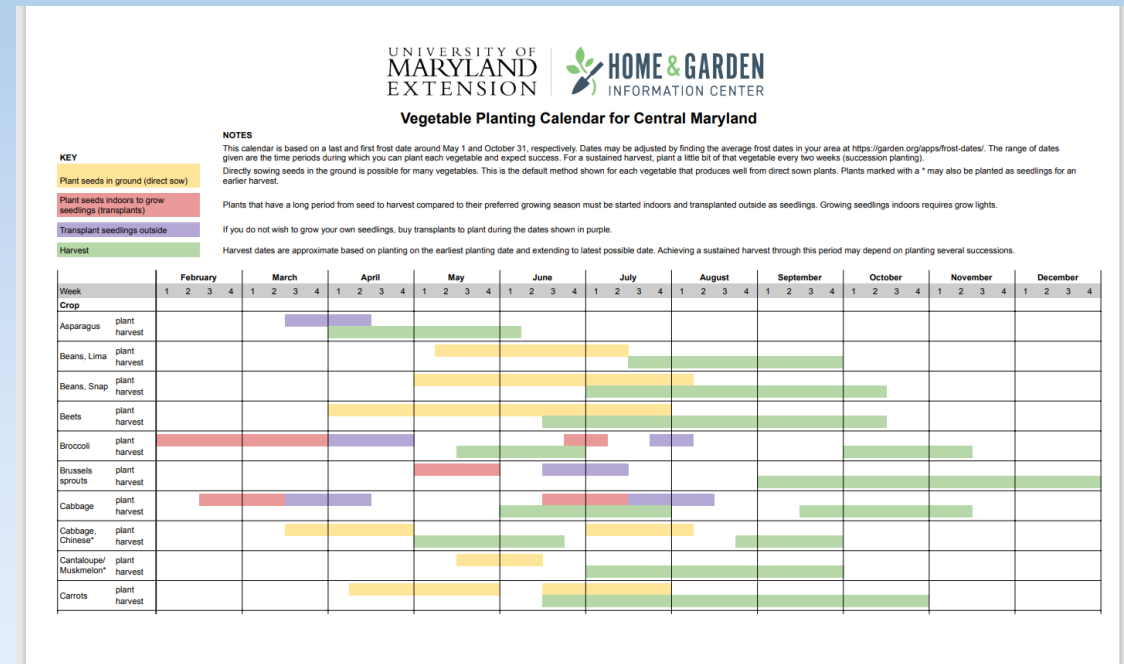
Cold hardiness and DTM vary with variety. Check the seed packet for details.

When to Plant Fall Vegetable Crops

Use the UME Planting Calendar for guidance

This calendar is based on a last and first frost date around May 1 and October 31, respectively. Dates may be adjusted by finding the average frost dates in your area.

For a sustained harvest, plant a little bit of that vegetable every two weeks (succession planting).



Planting Fall Vegetables

Know Your average First Frost date

Planting guidance for vegetable crops often references "First Frost" dates.



Dates are based on averages.

Always monitor local weather forecasts and be prepared to protect plants if needed!

Read planting and timing instructions on the individual seed packet.

In the Fall									
Temperature	10%	20%	30%	40%	50%	60%	70%	80%	90%
First 16°	Dec 5	Dec 14	Dec 20	Dec 25	Dec 30	Jan 3	Jan 9	Jan 15	Jan 23
First 20°	Nov 24	Dec 2	Dec 7	Dec 12	Dec 16	Dec 21	Dec 25	Dec 31	Jan 7
First 24°	Nov 9	Nov 16	Nov 22	Nov 27	Dec 1	Dec 6	Dec 11	Dec 17	Dec 24
First 28°	Oct 29	Nov 4	Nov 9	Nov 13	Nov 17	Nov 21	Nov 25	Nov 29	Dec 6
First 32°	Oct 17	Oct 23	Oct 27	Oct 31	Nov 3	Nov 7	Nov 10	Nov 14	Nov 20
First 36°	Oct 5	Oct 11	Oct 15	Oct 18	Oct 21	Oct 24	Oct 28	Nov 1	Nov 6

Probability of Frost/Freeze
for zip code 20646 (La Plata MD)

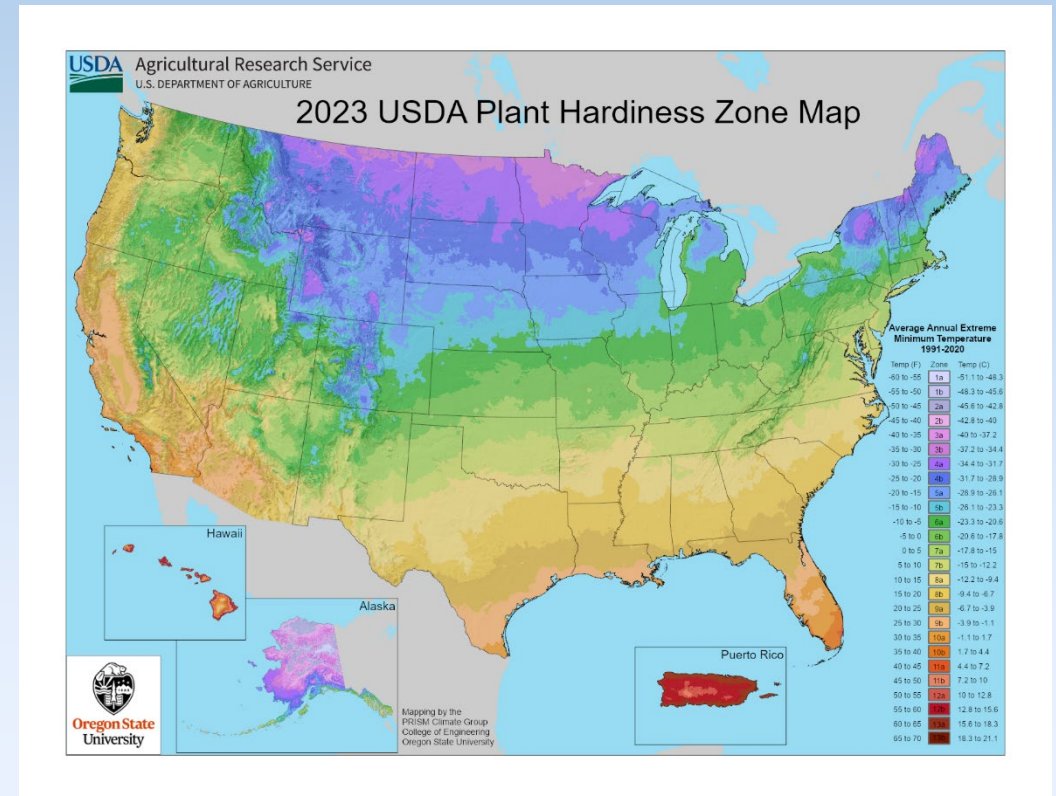
Planting Fall Vegetables

The USDA Plant Hardiness Zone Map map is based on the **average** annual extreme minimum winter temperature, displayed as 10-degree F zones and 5-degree F half zones.

The map is periodically revised based on data. The last revision was in 2023; before that it was 2012

The new hardiness map is based on 30-year averages of the lowest annual winter temperatures

What Is a Hardiness Zone?



Planting Fall Vegetables

What Is OUR Hardiness Zone?

You can determine your USDA hardiness Zone by going to the website

<https://planthardiness.ars.usda.gov/>

and entering your Zip Code

Most of Charles County is in 7b, moving a half zone from the previous 7a in 2012

Southernmost Charles County (Issue, Cobb Island) is now in Zone 8a

+	Zip Code Zone Search	▼	20646	×	🔍
Search result					
Click to Zoom					
20646, La Plata, Maryland					
2023 Hardiness Zone (1991-2020 average annual coldest temp)					
7b (5 to 10 °F/-15 to -12.2 °C)					
2012 Hardiness Zone (1976-2005 average annual coldest temp)					
7a (0 to 5 °F/-17.8 to -15 °C)					
Temperature Change 2012-2023					
+3 °F					

Direct Seed or Transplant?



Brussels Sprouts, Cabbage, Broccoli, Cauliflower and crops with **long Days to Maturity** should be planted as transplants. Seeds can be started indoors in mid to late summer.



Lettuce, carrots, and greens—including mustard greens, turnips, collards, kale and chard—can be direct-seeded into the garden soil in early Fall.

Some crops, like spinach, beets, and carrots, do not transplant well and should be direct seeded.

Planting Fall Vegetables

When deciding what to plant in the Fall, consider -

Days to Maturity - DTM - how long until harvest - fast-maturing varieties can produce before the coldest weather arrives.

Add 2 weeks to allow for slower plant growth as the day length shortens and the angle of the sun decreases.

Hardiness of the crop - what low temperature will the crop tolerate? Frost? Freeze? This can vary by cultivar/variety. Read the seed packet and description.

Remember, you can change the temperature in the garden with season extenders like row covers and low tunnels.



Days to Maturity can vary significantly by cultivar. For example, lettuce has a days to maturity of 40 - 80, depending on the type.

Planting Fall Vegetables

Too Late to start seeds for your desired crop?

For crops with long Days to Maturity (DTM) , if seeds are not started early enough to allow sufficient growth before setting outside, consider purchasing seedlings from local nurseries and box stores.

Many stores sell seedlings ready to plant well into October.



Plant Fall Vegetable Crops in the Garden

A great Winter crop in MD - Garlic

Plant individual cloves mid-late October so they have time to grow roots and a few leaves before cold weather sets in

Purchase certified, disease-free garlic bulbs for planting from reputable seed sources. Don't use store bought garlic.

Harvest when plant tops begin to die back in late June to early July.



Plant Fall Vegetable Crops in the Garden

Garlic



<https://youtu.be/MC6VWguUVNM?si=SBAQX5-YUH23KP5c>

QUESTIONS And BREAK

Extending the Growing Season with Plant Protection

A continuum of season
extenders from simplest
to most complex:

- Cloches
- Low tunnels and row covers
- Cold frames and hot beds
- High tunnels
- Greenhouses



Extending the Growing Season with Plant Protection

Cloches

Cloches include many types of portable structures that shelter plants

They trap solar radiation and keep moisture from evaporating.

Cloches are generally lightweight, portable, and reusable.



Photo - NC State University Extension

The best design allows it to be closed at night to prevent frost damage and opened or completely removed during the day for air circulation

Cloches should be anchored or heavy enough that they do not blow away.

Extending the Growing Season with Plant Protection Row Covers

Row Covers

- Enhance plant growth in spring and fall by increasing the temperature and humidity.
- Extend the growing season by providing 2- 8 ° F. of frost protection.
- Exclude large and small animals, especially insect pests (making it an excellent organic pest management tool).



Row covers are white, lightweight fabrics made from spun-bonded polyester or polypropylene. Air, light and water can penetrate.



Extending the Season with Plant Protection

Row Covers - weights and light transmission

Row covers have different weights
- the weight impacts both cold protection and light transmission



Left: Heavy-weight
Right: Light-weight row cover

- Light-weight- (0.45 oz./sq. yard) have 90%-95% light transmittance, give 2 °F. of frost protection, and can be left on some crops (e.g., beets, snap beans, salad greens) from seeding to harvest.
- Medium weight- (0.5-1.0 oz./sq. yd.) have 70%-85% light transmittance and give 4-6 ° F. of frost protection. For Spring , Fall, and overwintering crops.
- Heavy-weight- (1.5-2.2 oz./sq. yd.) allow 30-50% light transmittance and give up to 8 ° F. of frost protection. For overwintering crops.

Extending the Growing Season with Plant Protection

How to Use Row Covers

The row cover can lie directly on the crop- hence the name “floating row cover.” The growing plants push the cover upwards if you give it enough slack.

Alternatively, you can erect simple frames using wood, PVC pipe, #9 wire, or other available materials to support the row cover above your plants. This is recommended when using medium-weight and heavyweight row covers.

You can buy or make plastic snap clamps and clips to secure row covers to a PVC pipe frame.



Picture shows lightweight row cover on crop and heavyweight cover on hoops

Extending the Growing Season with Plant Protection

Row covers can be used over container plants



Arugula before
planting Nov 17



Arugula planted and
covered with row
cover on Nov 17



Arugula March 3rd -
Successfully over-
wintered

Extending the Growing Season with Plant Protection

Cold Frames and Hot Beds

A cold frame is a rudimentary plant forcing structure used to protect plants. It has no artificial heat added. The temperature inside the structure generally is not more than 5 to 10 degrees above the outside temperature. A mat or blanket may be placed over the frame on cold nights to conserve heat,

Basically, a hotbed is a heated cold frame.



Photo - Univ of MO Extension

Extending the Growing Season with Plant Protection

Setting Up Cold Frames and Hot Beds



Photo - Univ of MO Extension

The ideal location is on a slight slope, to assist with drainage, with a southern or southeastern exposure. This allows for maximum sun absorption.

Ideally, the back of the box should be next to either a wall or hedge to protect the plants from cold winds and winter precipitation; this will help retain heat captured within the bed.

The beds may be used in the spring to start seeds as well as harden off maturing seedlings

Extending the Growing Season with Plant Protection

High Tunnels

- High tunnels are generally constructed of a metal frame covered with a single layer of 6-mil greenhouse-grade plastic
- They are considered nonpermanent structures.
- They have high ceilings which allow gardeners to comfortably enter
- High tunnels do not have permanent heating or automated ventilation systems..
- High tunnels differ from greenhouses in that plants typically are grown directly in the ground instead of in pots.



Photo - Univ of NB Lincoln Extension

Ventilation is accomplished by manually or mechanically rolling up the plastic sides of the tunnel to allow crosswinds to move through the high tunnel.

Extending the Growing Season with Plant Protection Greenhouses

- Greenhouses used by homeowners to grow bedding plants, vegetable transplants and house plants are called Hobby Greenhouses.

- There are two basic types of greenhouses: attached and freestanding



Photo - Univ of NB Lincoln Extension

A Hobby Greenhouse

Many websites have information on building home greenhouses, including the University of GA Cooperative Extension:

<https://extension.uga.edu/publications/detail.html?number=B910#title1>

and

University of NB Lincoln:

<https://byf.unl.edu/greenhouses-controlled-environments/>

Plant Fall Vegetable Crops in the Garden

How big an area are you planting?

Vegetable	Method of planting	Spacing between rows (in.)	Spacing within each row (in.)	Seed planting depth (in.)	Days from planting to harvest
Beets	Seeds	12–18	3–4	0.5–0.75	60–70
Broccoli	Transplants	18–30	16–20		70–80
Brussels sprouts	Transplants	10–30	16–20		90–100
Cabbage	Transplants	18–24	16–20		75–90
Chinese cabbage	Seeds or transplants	12–16	10–18	0.5	75–90
Carrots	Seeds	12–18	1–2	0.25	70–80
Cauliflower	Transplants	18–24	16–20		70–80
Collards	Seeds or transplants	30–36	18–24	0.5	75–85
Garlic	Bulbs	12	4	2	Early June

Kale	Transplants	24–36	18	0.25	50–65
Kohlrabi	Transplants	18–24	4–6		50–70
Leaf lettuces	Seeds or transplants	12–18	2–3	0.25	60–70
Leeks	Seeds or transplants	12–24	2–4	0.5	Late spring
Mustard	Seeds	12–18	2–3	0.5	40–50
Onions	Seed, sets, or transplants	12–18	4	0.25	Late spring
Radishes	Seeds	8–12	0.75–1	0.5	20–40
Rutabaga	Seeds	24–36	3–4	0.5	80–90
Spinach	Seeds	8–12	1–2	0.5	50–60
Swiss chard	Seeds	24–30	2–3	0.5	50–60

From University Of Ga Extension

When choosing fall crops, be sure to consider both the size of the area you are planting and the number of vegetables you want to produce.

Pests of Cool Weather Crops



Cabbage Looper Larvae

Many cool weather crops can be damaged by armyworms, flea beetles, and caterpillar pests like cabbage loopers, diamondback moths, cross-striped cabbage worms and imported cabbage worms.



Flea Beetles

Management strategies -

- Clean up and dispose of unharvested plants, plant debris, and mulch that can harbor pests
- Use row covers to exclude pests
- Use BT on caterpillar pests if the damage is significant.

Pests of Cool Weather Crops

Beet and Spinach Leafminers



<https://youtube.com/shorts/vSxXNRSASQg?si=Bgk28kYFmlTHSoqS>








Pests of Cool Weather Crops

Imported Cabbage Worm



<https://youtube.com/shorts/urjOWildAhg?si=1M8rvjv9YBNgAmIL>

Resources

-  [Charles County Master Gardener's Grow It Eat It webpage.](#)
-  [Home and Garden Information Center | University of Maryland Extension \(umd.edu\)](#)
-  [Ask Extension | University of Maryland Extension \(umd.edu\)](#)
-  [Extensión en Español - Blogs de Extensión de la Universidad de Maryland \(umd.edu\)](#)
-  [Saving vegetable seeds | UMN Extension](#)
-  [Seed Saving Veggies Resources.pdf \(umd.edu\)](#)
-  [UMDHGIC - YouTube](#)
-  [Fall Vegetable Gardening | UGA Cooperative Extension](#)
-  [Season Extenders and Growing Fall Vegetables \(psu.edu\)](#)
-  [Vegetable Planting and Transplanting Guide](#)
-  [Row Covers | University of Maryland Extension \(umd.edu\)](#)
-  [Low Tunnels For Beginners | Extension | West Virginia University](#)
-  [Hobby Greenhouses | UGA Cooperative Extension](#)

UME Resources

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go.umd.edu/hgic



go.umd.edu/askextension



marylandgrows.umd.edu

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go.umd.edu/mg



go.umd.edu/mglocalprograms



go.umd.edu/mghandbook

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Master Gardener Program
Charles County

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