

Extending Vegetable Gardening into the Fall

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Benefits of a Fall Garden

- **Extends the season to produce more food**
- **Good quality vegetables with fall's warm days and cool nights; this adds sugar to cole crops**
- **With row covers, extend the season of frost-sensitive crops, possibly into the winter**

You Will Learn Two Methods of Fall Production:

- Timing for the last planting of warm season crops
- Plant cool season crops which withstand frost



Is it too early?

January

S	M	T	W	T	F	S
			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	

February

S	M	T	W	T	F	S
						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

March

S	M	T	W	T	F	S
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				

April

S	M	T	W	T	F	S
			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		

May

S	M	T	W	T	F	S
					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						

June

S	M	T	W	T	F	S
	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				

July

S	M	T	W	T	F	S
			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	

August

S	M	T	W	T	F	S
						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					

September

S	M	T	W	T	F	S
		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			

October

S	M	T	W	T	F	S
				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

November

S	M	T	W	T	F	S
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					

December

S	M	T	W	T	F	S
		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		



Depends on your Location in KY

Figure 9. Average date of last killing frost (36°F) in spring, plus average number of days between last frost in spring and first frost in fall.

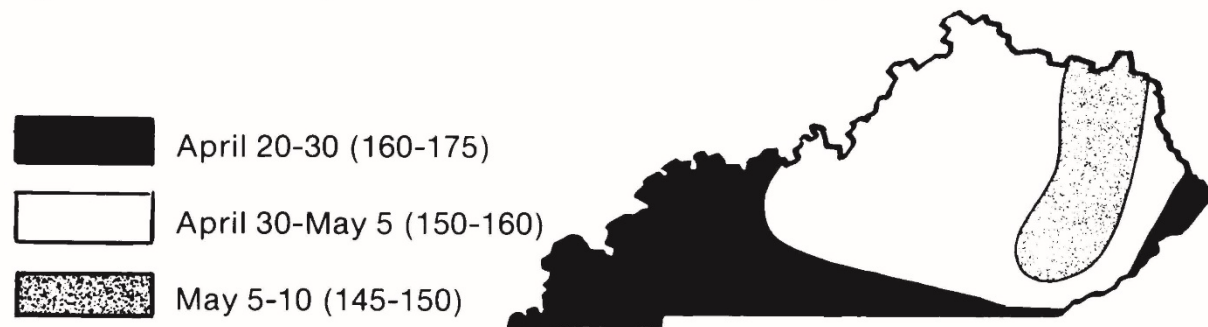


Figure taken from University of Kentucky's Home Vegetable Gardening in Kentucky (ID-128)

Latest Safe Planting Date – Warm Season Crops

From ID-128, Table 14

Crop	Eastern	Central	Western
Tomatoes (plants)	June 1	June 15	July 1
Cucumbers	June 15	July 1	July 15
Pepper (plants)	June 15	July 1	July 15
Beans (snap)	July 15	July 25	Aug 1
Summer squash	July 15	Aug 1	Aug 15

Lastest Safe Planting Date – Cool Season Crops

From ID-128, Table 14

Crop	Eastern	Central	Western
Cabbage (plants)	July 1	July 15	Aug 1
Broccoli (plants)	July 15	Aug 1	Aug 15
Kale	July 15	Aug 1	Aug 15
Snow peas	July 20	Aug 1	Aug 8
Beets	Aug 1	Aug 10	Aug 15
Lettuce (leaf)	Aug 1	Aug 15	Sept 1
Collards	Aug 15	Aug 20	Aug 30
Spinach	Aug 15	Sept 1	Sept 15
Radish	Sept 1	Sept 15	Oct 1

Depends on Your Microclimate



Ask Your Local Extension Agent about Timing

UK College of Agriculture, Food and Environment myUK Search our college

EXTENSION
It Starts With Us

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Extension Transition Updates

Home » Counties

Counties

[Counties By Alphabetical](#)
[Counties By District](#)

Adair	Allen	Anderson	Ballard	Barren	Bath	Bell	Boone	Bourbon	Boyd
Boyle	Bracken	Breathitt	Breckinridge	Bullitt	Butler	Caldwell	Calloway	Campbell	Carlisle
Carroll	Carter	Casey	Christian	Clark	Clay	Clinton	Crittenden	Cumberland	Davies
Edmonson	Elliott	Estill	Egystte	Fleming	Floyd	Franklin	Fulton	Gallatin	Garrard
Grant	Graves	Grayson	Green	Greenup	Hancock	Hardin	Harlan	Harrison	Hart

Please visit <http://extension.ca.uky.edu/county> for a full list of counties and agents.

Considerations for Fall Garden:

- Days to maturity
- Cooler temperatures slow maturity
- Size/growth habit
- Disease resistance
- Insect pressure
- Heat tolerance

Remember to:

- **Rotate crops**
- **Avoid closely related crops**
- **Helps prevent insect and disease build up**
- **Rotate away from a related crop for 3 years**

Related Vegetables

- beets, Swiss chard, spinach
- cabbage, cauliflower, broccoli, turnips, Chinese cabbage, Brussels sprouts
- potatoes, eggplant, tomatoes, peppers
- pumpkin, squash, watermelons, cucumbers, muskmelons

Planning for Seasonal Gardens

One garden, three growing seasons:

- **Spring, summer, fall**
- **Earliest and latest planting date guide**
 - **ID-128, pages 14 and 15 “Home Vegetable Gardening in Kentucky”**
 - **Examples:**
 - **Spring and fall cabbage and broccoli**
 - **Spring and fall lettuce and radishes**

Cool Season Crops

- **Tolerate light frost:**
 - **cabbage, broccoli, lettuce, cauliflower, onion, radish, collards, kale, carrots. Mustard greens, beets, turnips, turnip greens, Brussel sprouts, snow peas, Swiss Chard**

Warm Season Crops

- Do not tolerate frost:
 - cucumber, muskmelon, squash, watermelon, tomato, pepper, eggplant, green beans

Extend the Season with:

- Succession planting with warm season and cool season crops
- Season extenders –spring and fall
 - High tunnel
 - Row cover
 - Cold frame



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Lastest Safe Planting Date – Cool Season Crops

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High Tunnel



Row Cover



Starting Transplants or Direct Seed?

Transplants

Cabbage

Broccoli

Cauliflower

Eggplant

Tomatoes

Peppers

Squash

Direct Seed

Peas

Spinach

Lettuce

Beets

Beans

Squash

Sweet Corn

Hardening Off Plants

- Harden off plants 1 to 2 weeks before planting in the garden
- Reduce watering and fertilizer
- Don't let plants dry out and wilt

Care During Growing Season

- **Mulch**
 - Reduces water evaporation from soil surface
 - Reduces soil temperature
 - Reduces competition by weeds
- **Types of mulch:**
 - Organic – straw
 - Inorganic – plastic, fabric, newspaper



Weed Management

- **Avoidance:**
 - Don't bring in weed seed
 - Remove weeds before they go to seed
 - Control weeds at edges of garden and landscape – reduces insect pressure

Care During Growing Season

Fertilization:

- Pre-plant - apply 1 pound of actual nitrogen per 1000 square feet if fertilized according to soil test
- Sidedress crop according to Table 17, page 20 of ID-128
(<http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf>)

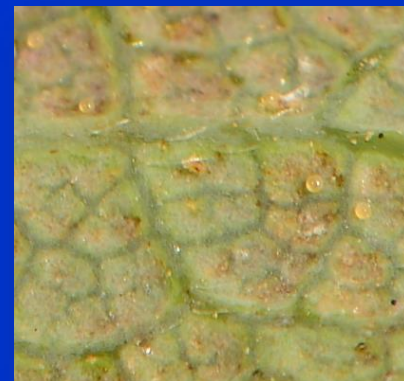
Care During Growing Season

Water:

- One inch per week
 - Water infrequently but thoroughly
- Application methods
 - Wet the soil, not the plant
 - Water during the cool of the morning
 - Automated systems—drip irrigation

Insect and Disease Management

- Scout for insect pests and diseases
- Check underside of leaves
- Proper identification of insect pests and diseases is key



Spider mite

Photo Credit:
Dr. Ric Bessin

Insect and Disease Management

- **Use cultural practices first as a management tool**
 - **Remove finished plant debris**
 - **Good air circulation**
 - **Disease resistant varieties**
 - **More listed on page 22 of ID-128**

Insect and Disease Management

- **Use labeled fungicides for diseases only when needed.**
- **Fungicides are protectants, so apply no later than first symptom of disease.**
- **Good coverage is needed on underside of the leaves too.**
- **Apply the fungicide before the rain.**

Insect and Disease Management

- **Always apply fungicide and insecticide according to the label.**
- **Insecticides can be applied after insect pest is present.**
- **Follow the number of waiting days before harvesting produce as stated on the pesticide label.**
- **Applies for both organic and non-organic pesticides.**

Insect Pests



Cabbage looper



**Diamond Back
Moth larva**

Photo Credit:
Dr. Ric Bessin,
University of KY

Insect Pest



Squash bug

Photo Credit:
Dr. Ric Bessin, University of KY

Insect Pest



Insect Pest



**Brown
marmorated
stink bug**

Photo Credit:
Dr. Ric Bessin, University of KY

Insect Pest

Frass is the “smoking gun”



Solid diet = solid waste
Tomato Horn Worm

Photo Credit:
Dr. Ric Bessin, University of KY

Insect Pest



Cucumber Beetles

Insect Pest



Aphids

Photo Credit:
Dr. Ric Bessin, University of KY

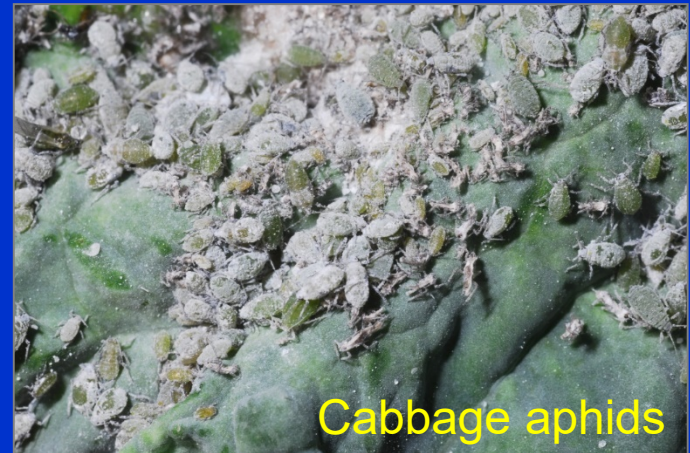
IPM

When does a pest become a problem?

- Know your tolerance level
 - Time, energy, and \$ you can spend?
- Know the tolerance level of plants
 - Defoliation vs. tunneling
 - Age of the plant



Cabbage aphids



Cabbage aphids

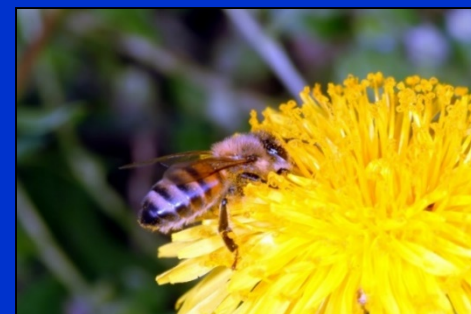
Insect Management

- Hand picking
- Insecticidal soap
- Horticultural oils
- *Bacillus thuringiensis* (Bt)

Protect the Pollinators!

Ways to reduce exposure to pollinators

- Don't spray if you don't have to
- Select sprays safe for pollinators
- Mow off flower heads before spraying
- Spray after 6 pm



More Insect Management Information

- **Local Extension Agent**
- **Home Vegetable Gardening in Kentucky—ID-128**
 - <http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf>
- **Resources from the University of Kentucky Cooperative Extension Service:**
 - <http://entomology.ca.uky.edu/vegetable>

Disease

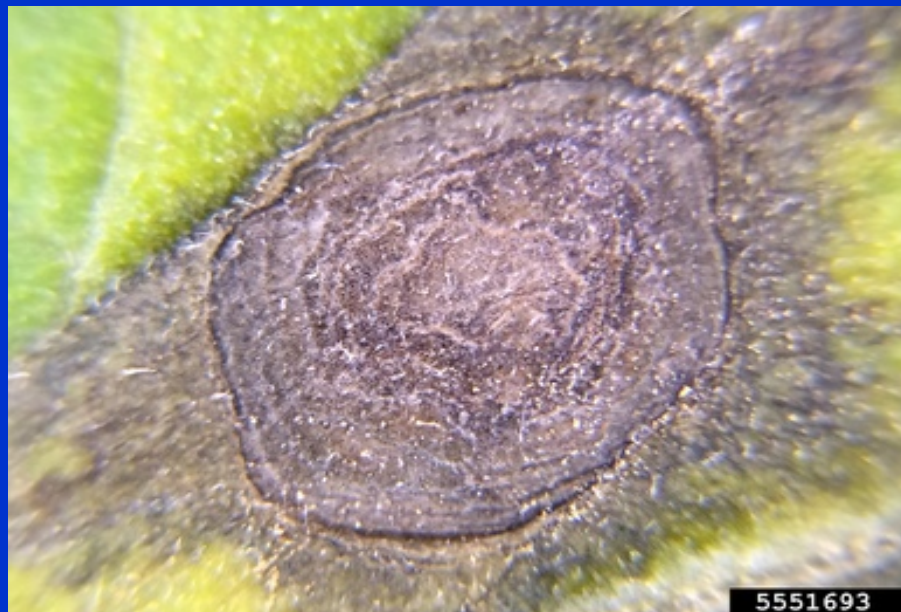


Tomato Blossom End Rot

(abiotic)

Use a mulch on the soil

Disease



Tomato Early Blight

Alternaria solani (fungus)

Photo credit: Rebecca A. Melanson, Mississippi State University, Bugwood.org - Right photo: Gerald Holmes, Strawberry Center, Cal Poly San Louis Obis, Bugwood.org – Left photo

Disease



Tomato Septoria Leaf Spot

Septoria lycopersici (fungus)

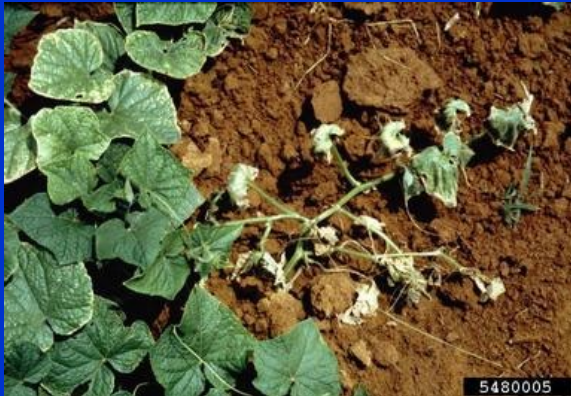
Disease



Cucurbits Powdery Mildew

Podosphaera fuliginea (fungus)

Disease



Bacterial Wilt of Cucumber

Erwinia tracheiphila

More Disease Management Information

- **Local Extension Agent**
- **Home Vegetable Gardening in Kentucky—ID-128**
 - <http://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf>
- **Resources from University of Kentucky Cooperative Extension Service:**
 - <http://plantpathology.ca.uky.edu/extension/publications#VegetableCrops>



Label Restrictions

- Do not apply a pesticide at a dosage greater than listed on the labeling.
- Do not apply a pesticide on a type of plant not covered by the labeling.
- Do not apply a pesticide more often than allowed by the labeling.
- *Never have a person under 18 apply pesticides.*



Stink bug damage



Bumble bee

Thank You!
Enjoy Your Fall
Garden!
Questions?

