

## Rutgers Cooperative Extension

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# BELL PEPPER IPM FIELD GUIDE

## Pre-Planting Decisions:

1. Treat seed with Clorox to prevent bacterial leaf spot if the seed company has not treated with a chlorine solution. (292)\*
2. Use varieties resistant to all three races to prevent bacterial leaf spot.
3. Practice 3 year rotation from all pepper, eggplant, tomato and cucurbit (cucumbers, melons, squash, pumpkins) crops for disease management of Phytophthora. (292)
4. Obtain pest/disease free transplants. Do not produce transplants in greenhouses with ornamental bedding plants, especially Impatiens to avoid TSWV. (103, 292)
5. Plant on ridges or raised dome shaped beds to reduce the threat of Phytophthora. (292)
6. Lime and fertilize according to soil test recommendations. (1584)
7. Use the information obtained from the previous season's weed scouting to select appropriate control strategies for those weeds. Match preplant incorporated and preemergence herbicides to soil type and percent organic matter in each field. (292)

## Planting to Pre-fruit Stages

Disease	Sampling – what to look for	Frequency	Threshold	Notes
<b>Phytophthora Blight</b> (93)	Look for wilted plants in the field, especially in low spots.	Weekly	Presence of wilted plants	Rogue infected plants. Additionally, for polyethylene mulch culture, remove 2 foot section of mulch between infected & healthy plants.
<b>Bacterial Leaf Spot</b> (92)	Sample 5 plants in 10 locations. Look for leaf defoliation and brown spots on leaves	Weekly	1 plant/50 plants	Avoid entering fields with bacterial leaf spot when foliage is wet.
<b>Tomato Spotted Wilt Virus (TMSV)</b> (88, 103)	Look for stunted or purplish streaked plants	Weekly	Presence of symptomatic plants	<b>Treatment:</b> rogue out diseased plants and remove from the field.

PEST	Damaging Stage	Monitored Stage	SAMPLING		THRESHOLD	NOTES
			Method	Frequency		
<b>Leafminers</b> (605)	Larva	Larva	Sample 5 plants in 10, 2 leaves/plant for mines. Count new mines. Record # mines/leaf.	Weekly	Consider control if mines are easily found & numbers are increasing.	Transplants from southern states may arrive with infestations of leafminers.
<b>Green Peach Aphid</b> <b>Melon Aphid</b> (144, 50, 419)	All	All	Sample 5 plants in 10 locations, 2 leaves per plant from the lower third of the plant. Record total number of aphids & predominant species.	Weekly	1-2 aphids/leaf	Overuse of pesticides may flare aphid populations. Periods of cool weather followed by hot weather also may contribute to population increases. Aphids vector several viral diseases.
<b>Mites</b> (144, 240)	Adult Immature	Adult Immature	Sample in same manner as for aphids. Record # of leaves with live mites. Note hot spots in the field.	Weekly	Consider control when white stippling is first noticed and mites are increasing.	Warm, dry weather increases threat of mite infestations. <b>Treatment:</b> 7 days after treatment, recheck field for <u>live</u> mites.

## Planting to Pre-fruit Stages, continued

PEST	Damaging Stage	Monitored Stage	SAMPLING		THRESHOLD	NOTES
			Method	Frequency		
<b>Pepper Maggot</b>  (143, 1249)	Larva	Adult	Early June - Yellow sticky traps placed uniformly throughout field just above the growing foliage	Weekly	First significant catch of emerging flies.	Pepper maggot flies are active from June 1 to mid-August. Use of Orthene for ECB control usually maintains control of pepper maggot.
<b>European Corn Borer (ECB)</b> (143)	Larva	Adult	Black light trap placed within 1 mile of field	2 - 3x /week	3 - 4 ECB/night	<b>Treatment:</b> options change when CEW, FAW are present.

## Fruiting to Harvest

PEST	Damaging Stage	Monitored Stage	SAMPLING		THRESHOLD	NOTES
			Method	Frequency		
<b>European Corn Borer (ECB)</b>  (143)	Larva	Adult	Black light trap placed within 1 mile of field.	2 - 3x/week	1 moth/night on most nights	Once threshold has been reached, controls should be instituted on a 7 day interval unless BLT catches of ECB exceed 100/5 days. Then shorten spray interval to 5 days.
<b>Corn Earworm (CEW)</b> (143)	Larva	Adult	Pheromone trap: place lure at canopy level	2x/week	20 moths/night	Shorten spray intervals when populations are high.
<b>Fall Armyworm (FAW)</b> (143)	Larva	Adult	Pheromone trap: place lure at canopy level.	2x/week	Increasing numbers of moths	
<b>Beet Armyworm</b>  (143)	Larva	Adult	Pheromone trap: place lure at canopy level and scout 5 plants in 10 locations for presence of larvae.	2x/week	Increasing numbers of moths + larvae in the field.	Check tops of plants for feeding damage. Check undersides of leaves for presence of larvae. Predominately a Southern NJ problem.
<b>Pepper Maggot</b>  (143)	Larva	Adult	Early June – yellow sticky traps placed uniformly throughout field just above growing foliage.	Weekly	First significant catch of emerging flies.	Pepper maggot flies are active from June 1 to mid-August. Use of Orthene for ECB control usually maintains control of pepper maggot. Pepper maggot is more a problem in hot peppers than in bell peppers.
<b>Mites</b>  (144, 240)	Adult Immature	Adult Immature	Sample 5 plants in 10 locations. Record # of leaves with live mites. Map “hot spots” in the field.	Weekly	When stippling is present and live mite numbers are increasing. Consider spot treatments for hot spots.	Mite infestations favored by hot, dry weather. Heavy populations can result in stippling and russetting of fruit

Fruiting to Harvest, continued

PEST	Damaging Monitored Stage	Method	Sampling Frequency	Threshold	Notes
<b>Aphids</b>  (144,50, 419)	All	Sample 5 plants in 10 locations, 2 leaves per plant from the lower third of the plant. Record total number of aphids & predominant species.	Weekly	1-2 aphids/leaf	Overuse of pesticides may flare aphid populations. Potential for aphid buildup with use of pyrethroids. Heavy aphid populations can result in sooty mold problems on fruit at harvest.

Disease	Sampling – what to look for	Frequency	Threshold	Notes
<b>Phytophthora Blight</b>  (93)	Look for wilted plants in the field, especially in low spots.	Weekly	Presence of wilted plants	Remove infected plants or disc into soil completely as soon as they appear. Bare ground culture: maintain dome shaped bed or ridge. <b>Do not leave depression at top of bed/ridge.</b> Polyethylene mulch culture: remove 2-foot section of mulch between infected & healthy plants. Grade soil at end of rows to allow water to leave field readily during rainfall.
<b>Bacterial Leaf Spot</b> (92)	Sample 5 plants in 10 locations. Look for leaf defoliation and brown spots on leaves	Weekly	1 plant/50 plants	Avoid entering fields with bacterial leaf spot when foliage is wet.
<b>Tomato Spotted Wilt Virus (TMSV)</b> (88, 103)	Look for stunted or purplish streaked plants	Weekly	Presence of symptomatic plants	<b>Treatment</b> rogue out diseased plants and remove from the field.

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\***Bolded numbers in parenthesis indicated sources of additional information found in the Mid-Atlantic IPM database by this special reference number.**

Scouting procedures, thresholds, and crop management recommendations have been compiled from a number of sources and may not be valid for all areas within the Mid-Atlantic Region. These field guides are meant to be used as guidelines. As such, they should be validated on a small acreage before relying on them. No guarantee of their validity, success, or failure to perform in the field is implied or expressed. Consult your local Cooperative Extension Agent for additional information or assistance.