

Rutgers Cooperative Extension

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UMBELLIFEROUS HERBS IPM FIELD GUIDE

PARSLEY, CILANTRO, DILL AND FENNEL

Preplant Decisions

1. Sample soil in fall (by late November) and submit to lab for detection of nematodes. If treatment is required, fumigate prior to planting in spring. Consider using higher recommended rates of fumigant if field has a history of damping off problems.
2. Moldboard plow fields to bury crop residue prior to each seeding to reduce the inoculum for damping off, bacterial leaf spot, and other diseases. This is particularly important for summer plantings when high temperatures promote rapid disease development.
3. Identify fields that have previously had a problem with carrot weevil. Adults overwinter where there was food last fall (weed or crop residues). Fields located near woods or hedgerows are also likely to present a problem.
4. Rotate crop and/or fields out of host crops (any member of the carrot family) for three years or more to control carrot weevil. Do not plant next to overwintered parsley or cilantro fields. This will effectively reduce disease development, as well.
5. Destroy weed hosts within 200 yards of crop field (Queen Anne's lace, broadleaf plantain, dock, sour grass).
6. Plant problem fields as late as possible to reduce carrot weevil ovipositioning or as far from problem or overwintering fields as possible.
7. Apply lime and fertilizer according to soil test recommendations. (1584)*
8. Identify the weeds in each field and select appropriate control strategies for those weeds. Map perennial or noxious weeds. Match preplant incorporated and preemergence herbicides to soil type and percent organic matter in each field. (292)

Emergence to Harvest

Scout the field in an X, W or Z fashion paying particular attention to low spots or areas of reduced air circulation.

DISEASE	WHAT TO LOOK FOR	SAMPLING		THRESHOLD	NOTES
		Method	Frequency		
Damping Off <i>Pythium</i> <i>Rhizoctonia</i>	<i>Pythium</i> : Look for collapsed plants at or shortly after emergence, generally in clumps 3 to 6 inches in length along the row. <i>Rhizoctonia</i> : Scout for <i>Rhizoctonia</i> whenever there are periods of wet weather. Lesions appear as distinct dark red girdling at the soil line.	Scout paying particular attention to weedy spots, low areas in the field or places where plants remain wet for long periods of time.	weekly	presence	Planting on raised beds and ditching/drainage improvement will help in limiting damping off. Moldboard plowing greatly reduces crop residue in the top 2 inches of soil where damping off organisms thrive.

Emergence to Harvest, continued

DISEASE	WHAT TO LOOK FOR	SAMPLING		THRESHOLD	NOTES
		Method	Frequency		
Bacterial Spot	Look for black, watersoaked lesions on cotyledons and lower leaves.	Scout paying particular attention to weedy spots, low areas in the field or places where plants remain wet for long periods of time	weekly	presence	Cultural practices, which promote air circulation, help to limit disease development. Use of hoops to support rowcovers in early spring may help in limiting disease. Do not remove rowcovers or work in fields when foliage is wet.
Leaf Spots Septoria Stemphyllium Cercospora Phyllosticta	Look for symptoms of small, circular, dark brown lesions with gray centers. Septoria lesions will have small black specks in the center of the gray area.	Disease development favored by frequent and extended rainy periods. Scout fields for leaf spots whenever this weather is prevalent.	weekly	presence	Practice good sanitation so that disease is not spread from field to field. Spread successive plantings as far apart as possible. Promptly incorporate crop residue after harvest
Sclerotinia White Mold	Look for wilting plants with white cottony fungal growth near soil line.	Disease development favored by cool damp conditions (50 - 70°F) and saturated soils for 10 days. Scout for this disease whenever favorable conditions exist.	weekly	presence	Avoid planting in fields with poor drainage. Plant on raised beds. Do not overirrigate, especially when rainy/cloudy weather is predicted.
Root Knot Nematodes	Scout for stunted, nutrient-deficient appearing plants or less vigorous plants in a circular pattern in the field.	Carefully remove roots from the soil with out breaking off small roots. Examine roots for the presence of galls. Take soil samples and submit to laboratory for analysis.	weekly	presence	No control measures available for current crop. Fumigate soil before another susceptible crop is planted. Disinfest equipment after working in the field to avoid spread to other fields.

Three True Leaf Stage

PEST	Damaging Stage	Monitored Stage	SAMPLING		THRESHOLD	NOTES
			Method	Frequency		
Cutworm	larval	larval	Scout for missing or cut off plants next to weedy field edges, ditches, roads, woods or in low lying areas of the field. Sift through soil to a depth of 3 inches for larva within a 1.5 inch radius of damaged plants.	2x/week at emergence and shortly thereafter	none established	Cutworms hide during the day under soil clumps, stones or decaying vegetation.
Carrot Weevil (793, 803, 145)	larval	Adult	Use Boivin carrot weevil traps to detect adult carrot weevil activity.	2x/week (793)	presence	Change carrot bait twice weekly.

Five Leaf Stage

PEST	WHAT TO LOOK FOR	SAMPLING		THRESHOLD	NOTES
		Method	Frequency		
Carrot Weevil or <i>Pythium</i> (145, 803)	Look for yellowing of plants, wilting of plants on hot days.	Dig up yellowing or wilting plants. If there are orange gouges near the crown, carrot weevil is the cause. If the roots appear shortened with reddish to orangish root tips, <i>Pythium</i> is the cause.	once at five leaf stage	presence	Use this information for planning next rotational crop.
Aphids	Look for aphid colonies on succulent new growth or the undersides of leaves. Feeding by large populations causes foliage to yellow or wilt and new shoots maybe stunted or deformed. (381)	Check along field edges, sampling 25 plants in each quadrant of the field. Yellow sticky traps or water pans can also be used to monitor aphid populations.	weekly	none established	Treat only infested areas of a field if infestation is localized. Overuse of pyrethroids kill predators/parasites that help keep aphid populations under control. (292)

Late Summer Plantings for Fall Harvest

PEST	Damaging & Monitored Stage	SAMPLING		THRESHOLD	NOTES
		Method	Frequency		
Zebra moth caterpillar, Parsley caterpillar, and celeryworms (145)	larval	Scout for these occasional foliage feeders in late summer looking for the distinctively marked larvae or skeletonized leaves.	weekly	none established	Only rarely are there sufficient numbers of these highly visible insects to cause economic injury.

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***Bolted numbers in parenthesis indicate sources of additional information found in the Mid-Atlantic 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.