

F. Commodity Recommendations

Pesticide Use Disclaimer

THE LABEL IS THE LAW

Before using a pesticide, check the labeling **distributed with the product at the point of sale for legally enforceable rates and use restrictions and precautions**. Although labels are available on the Internet from electronic label services such as CDMS (<http://www.cdms.net/>), Greenbook (<https://www.greenbook.net/>), or Agrian (<https://www.agrian.com/labelcenter/results.cfm>) the information contained in these electronic labels may not be identical to the labeling distributed with the product. **Please be advised that these electronic label services provide use disclaimers, and in some cases legally binding User Agreements assigning all liability to user of service.** (See section D 3.1. Labels and Labeling for more detail.)

Guide to the Recommended Pesticide Tables in the Following Crop Sections:

1. Pesticides are listed by **group number or code based on chemical structure and mechanism of action**, as classified by the Herbicide Resistance Action Committee (**HRAC**, <https://hracglobal.com/>) for herbicides, the Insecticide Resistance Action Committee (**IRAC**, <https://irac-online.org/>) for insecticides, and the Fungicide Resistance Action Committee (**FRAC**, <https://www.frac.info/>) for fungicides.
In this guide, if the group number or code is in bold font, there are resistance concerns for the product.
2. **Restricted use pesticides** are marked with a * in the Tables. These products may only be used by certified and/or licensed pesticide applicators, and when stated on the label, those making applications under their direct supervision. Some labels may restrict use solely to certified and/or licensed applicators. (See section D 3.2.1 Restricted Use Classification Statement for more detail).
3. **In addition to the pesticide products listed in the Commodity Recommendations below, other formulations or brands with the same active ingredient(s) may be commercially available. ALWAYS CHECK THE INDIVIDUAL PRODUCT LABELING:**
 - a) to ensure a pesticide is labeled for the same intended use,
 - b) to ensure the pesticide is labeled for the desired crop,
 - c) for differences in application rates and % active ingredient(s), and
 - d) additional restrictions.
4. All pesticide recommendations contained in this document are prescribed for spray applications to a **broadcast area of 1 acre** (43,560 square feet). **Adjust the rate accordingly for banded applications** (See section E 1.3. Calibrating Granular Applicators) **or for chemigation** (check labels for amounts per 1,000 feet).
5. Check the label for and do not exceed the maximum amount of pesticide per application and the maximum number of applications per year.
6. **Bee Toxicity Rating (Bee TR):** N=nontoxic; L=minimum impact on bees; M=moderately toxic, can be used if dosage, timing, and method of application are correct, but should NOT be applied directly to the crop if bees are present; H=highly toxic, severe losses expected, -- = data not available.
7. In accordance with the USDA National Organic Program, the Organic Materials Research Institute (OMRI) maintains a directory of all products that OMRI has determined are allowed for use in organic production, processing, and handling. These products are catalogued online in the **OMRI Products List** (see <https://www.omri.org/omri-lists>).

Parsley

Recommended Varieties¹

Type	Variety ¹
Curly Leaf	Banquet (Overwintering)
	Darki
	Einfache Schnitt (overwinter)
	Forest Green (Semi-curled)
	Moss Curled II
	Wega
Flat Leaf	Gigante D'Italian (Giant of Italy)
	Italian Plain Leaf (Dark Green)
	Peione
	Pinocchio
	Plain (Overwinter)

¹Listed alphabetically within type;
all varieties are open pollinated.

Recommended Nutrients Based on Soil Tests

In addition to using the table below, check the suggestions on rate, timing, and placement of nutrients in your soil test report and chapter B Soil and Nutrient Management. Your state's soil test report recommendations and/or your farm's nutrient management plan supersede recommendations found below.

Parsley	N (lb/A)	Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
		P ₂ O ₅ (lb/A)				K ₂ O (lb/A)				
150-175	200	150	100	0	200	150	100	0	Total nutrient recommended	
50-75	200	150	100	0	200	150	100	0	Broadcast and disk-in	
25-50	0	0	0	0	0	0	0	0	Sidedress after first cutting	
25-50	0	0	0	0	0	0	0	0	Sidedress after each additional cutting	

Seeding and Spacing

Seed is sown 1/3-inch-deep in a well-prepared seedbed as early as ground can be worked in late February/early March through mid-May for late spring/summer harvest. Later plantings can be sown beginning in mid-July for fall harvest and through mid-August for overwintered production. Spacing between rows is 12-18 inches. Parsley seeds are drilled at a rate of 20-40 lb/A, with plants spaced 1-2 inches apart in each row. Seed is slow to germinate. If seeds are more than 1 year old, test the germination and increase the sowing rate to compensate for reduced germination.

Overwintered and the earliest spring and later fall plantings benefit from the use of floating row covers and/or low or high tunnels for protection from freezing. Floating row covers can create conditions favorable for bacterial leaf spot infections to start and spread. Removing row covers on warm or windy days to allow excess moisture to evaporate will help reduce incidence of bacterial leaf diseases.

Harvest and Post-Harvest Considerations

Parsley can be harvested by cutting a few leaves at a time from each plant, or entire plants may be cut or dug with roots attached and bunched for sale. If cut above the crown, plants will regrow for a second cutting. Parsley leaves are used commonly for fresh market, but also for dried herb markets where the characteristic flavor and green color can be retained if the leaves are dehydrated. Store fresh parsley at 32°F (0°C) and 95-100% relative humidity. Parsley can keep up to 2-2.5 months at 32°F, but high humidity is essential to prevent desiccation. Do not store with other crops that produce ethylene as parsley is very sensitive to ethylene. Packaging in perforated polyethylene bags and using top ice are beneficial for longer storage periods. Controlled atmosphere of approximately 10% oxygen and 11% carbon dioxide at moderate temperatures (41-50°F/5-10°C) can help retain green color and salability.

Weed Control

THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of chapter F. Recommended Herbicides

1. Identify the weeds in each field and select recommended herbicides. More information is available in the "Herbicide Effectiveness on Common Weeds in Vegetables" (Table E-3) in chapter E Pest Management.
2. Minimize herbicide resistance development. Identify the herbicide mode of action group number and follow recommended good management practices; **bolded group numbers in tables below are herbicides at higher risk for selecting resistant weed populations.** Include non-chemical weed control whenever possible.

1. Soil-Applied (Pre-plant Incorporated or Preemergence)						
Group	Product Name (*= Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
5	Caparol 4L	1 pt/A	prometryn	0.5 lb/A	30	12
-Apply after seeding, but before crop emergence. Follow with overhead irrigation if rainfall does not occur. Primarily controls annual broadleaf weeds. Annual grasses may only be suppressed. Additional postemergence treatments may be needed for full-season control. -Do not use on sand or loamy sand soils, or crop injury may occur. -Do not tank mix Caparol with any other pesticide. -Do not apply more than 1 pt/A in a single application and maximum Caparol 4L application per season is 3 pt/A.						
7	Lorox 50DF	1 to 3 lb/A	linuron	0.5 to 1.5 lb/A	30	24/9 6
-Apply immediately after seeding. Follow with irrigation if rainfall does not occur. Primarily controls broadleaf weeds. Annual grasses may only be suppressed. -Do not apply more than 1.5 lb/A linuron per season. Do not apply to parsley through any type of irrigation system. -The restricted-entry interval is extended from 24 to 96 h (4 days) after hand-set irrigation activity.						
8	Prefar 4E	5 to 6 qt/A	bensulide	5 to 6 lb/A	--	12
-Labeled for pre-plant incorporated or preemergence applications; do not incorporate more than 2 inches deep (1 inch is optimum). -Use on mineral soils only. If applied preemergence, irrigate within 36 h of application with ½ inch of water; if not incorporated with irrigation or rainfall within 36 h, weed control maybe reduced. -Provides control/suppression of some annual grass weeds and some broadleaves including pigweeds, purslane, and lambsquarters. -Do not apply more than 6 lb ai/A per season.						

2. Postemergence						
Group	Product Name (*= Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
1	Select 2 EC	6 to 8 fl oz/A	clethodim	0.07 to 0.125 lb/A	14	24
	Select Max 0.97EC	9 to 16 fl oz/A				
	Poast 1.5EC	1 to 1.5 pt/A	sethoxydim	0.2 to 0.28 lb/A	15	12
-Select 2EC: use crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution). Select Max: use nonionic surfactant (NIS) at 0.25% v/v (1 qt/100 gal of spray solution). Poast: use COC at 1.0% v/v. -The use of COC may increase the risk of crop injury when hot or humid conditions prevail. To reduce the risk of crop injury, omit additives or switch to NIS when grasses are small and soil moisture is adequate. -Use lower labeled rates for annual grass control and higher labeled rates for perennial grass control. -Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will not be controlled. Controls many annual and certain perennial grasses, including annual bluegrass, but Poast is preferred for goosegrass control. For best results, treat annual grasses when they are actively growing and before tillers are present. Control may be reduced if grasses are large or under hot or dry weather conditions. -Repeated applications may be necessary to control certain perennial grasses. If repeated applications are necessary, allow 14 days between applications. -Rainfastness is 1 h. -Do not tank mix with or apply within 2 to 3 days of any other pesticide, unless labeled, as this may increase the risk of crop injury or reduce the control of grasses. Do not apply more than 8 fl oz of Select 2EC in a single application and do not exceed 2 pt/A for the season; do not apply more than 16 fl oz of Select Max in a single application and do not exceed 4 pt/A for the season. -Do not apply more than 1.5 pt/A Poast in a single application and do not exceed 3 pt/A for the season.						
5	Caparol 4L	1 pt/A	prometryn	0.5 lb/A	30	12
-Apply after the crop has developed 3 true leaves. Primarily controls seedling annual broadleaf weeds less than 2 inches tall. Annual grasses may only be suppressed. An additional treatment can be applied to regrowth after the first harvest. -Do not use on sand or loamy sand soils, or crop injury may occur. Do not apply if parsley is under stress. -Do not tank mix Caparol with any other pesticide. Do not use spray additives such as nonionic surfactant or oil concentrate. -Do not apply more than 1 pt/A in a single application and maximum Caparol 4L application per season is 3 pt/A.						

3. Postharvest						
Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
22	Gramoxone SL 2.0* Gramoxone SL 3.0*	2.25 to 3 pt/A 1.5 to 2 pt/A	paraquat	0.56 to 0.75 lb/A	--	24
<p>-A Supplemental Label in DE for the use of both Gramoxone formulations for postharvest application to desiccate the crop. -Apply after the last harvest for bareground or plasticulture. Always include an adjuvant. -Spray coverage is essential for optimum effectiveness. See the label for additional information and warnings. -Rainfastness 30 min. A maximum of 2 applications for crop desiccation are allowed. Restricted-use pesticide. Only certified applicators, who successfully complete the paraquat-specific training, can mix, load, or apply paraquat. Application of paraquat "under the direct supervision" of a certified applicator is no longer allowed. Required training link (http://usparaquattraining.com); certified applicators must repeat training every three years.</p>						

4. Other Labeled Herbicides		
These products are labeled but limited local data are available; and/or are labeled but not recommended in our region due to potential crop injury concerns.		
Group	Product Name (*=Restricted Use)	Active Ingredient
14	Aim	carfentrazone
14	Vida	pyraflufen

Insect Control

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Aphids

Apply one of the following formulations:						
Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Malathion 57 EC	1.0 to 2.0 pt/A	malathion (2 applications per season, only)	7	24	H
4A	Neonicotinoid insecticides registered for use on Parsley: see table at the end of Insect Control.					
4C	Closer SC	1.5 to 2 fl oz/A	sulfoxaflor	3	12	H
4D	Sivanto Prime	21.0 to 208.0 fl oz/A	flupyradifurone - soil	21	12	M
4D	Sivanto Prime	7.0 to 14.0 fl oz/A	flupyradifurone - foliar	1	12	M
9B	Fulfill 50WDG	2.75 oz/A	pymetrozine	7	12	L
9B	PQZ	2.4 to 3.2 fl oz/A	pyrifluquinazon	1	12	L
23	Movento	4 to 5 fl oz/A	spirotetramat	3	24	L
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28 + 6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
29	Beleaf 50SG	2.0 to 2.8 oz/A	flonicamid	0	12	L
UN	Azatin O, Aza-Direct, Ecozin, Neemix (OMRI)	Refer to individual labels for rates	azadirachtin	0	4	L

Armyworms

Apply one of the following formulations:						
Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
3A	Mustang Maxx*	3.2 to 4.0 fl oz/A	zeta-cypermethrin - not for beet armyworm	1	12	H
3A	Tombstone*, others	2.4 to 3.2 fl oz/A	cyfluthrin - not for beet armyworm	0	12	H
3A + 4A	Leverage 360*	3.0 fl oz/A	imidacloprid + beta-cyfluthrin - not for beet armyworm	7	12	H
5	Entrust SC (OMRI)	6.0 to 10.0 fl oz/A	spinosad	1	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	1	4	M
6	Proclaim 5SG*	2.4 to 4.8 oz/A	emamectin benzoate	7	12	H
18	Intrepid 2F (early season)	4.0 to 8.0 fl oz/A	methoxyfenozide	1	4	L
18	Intrepid 2F (late season)	8.0 to 10.0 fl oz/A	methoxyfenozide	1	4	L
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - soil and foliar	1	4	L
28	Exirel	7.0 to 13.5 fl oz/A	cyantraniliprole	1	12	H

Armyworms - continued next page

Armyworms - continued

28	Verimark	5 to 10 fl oz/A	cyantraniliprole	n/a	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28 + 6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H

Carrot Weevils

Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Malathion 57 EC	1.0 to 2.0 pt/A	malathion	7	24	H

Flea Beetles, Leafhoppers

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Sevin XLR Plus	0.5 to 1 qt/A	carbaryl	14	12	H
3A	Baythroid XL*	2.4 to 3.2 fl oz/A	beta-cyfluthrin	0	12	H
3A	Mustang Maxx*	2.24 to 4.0 fl oz/A	zeta-cypermethrin	1	12	H
3A	Permethrin 3.2EC*, others	2.0 to 8.0 fl oz/A	permethrin	1	12	H
3A	Tombstone*, others	2.4 to 3.2 fl oz/A	cyfluthrin	0	12	H
4A	Neonicotinoid insecticides registered for use on Parsley: see table at the end of Insect Control.					
4C	Closer SC	1.5 to 2 fl oz/A	sulfoxaflo	3	12	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H

Tarnished Plant Bugs

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Sevin XLR Plus	1 to 2 qt/A	carbaryl	14	12	H
3A	Baythroid XL*	2.4 to 3.2 fl oz/A	beta-cyfluthrin	0	12	H
3A	Mustang Maxx*	3.2 to 4.0 fl oz/A	zeta-cypermethrin	1	12	H
3A	Tombstone*, others	2.4 to 3.2 fl oz/A	cyfluthrin	0	12	H
3A + 4A	Leverage 360*	3.0 fl oz/A	imidacloprid + beta-cyfluthrin	7	12	H
29	Beleaf 50SG	2.0 to 2.8 oz/A	flonicamid	0	12	L

Group 4A Neonicotinoid Insecticides Registered for Use on Parsley

Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
4A	Actara 25WDG	1.5 to 3.0 oz/A	thiamethoxam	7	12	H
4A	Platinum 75SG	5 to 11 oz/A	thiamethoxam	30	12	H
4A	Admire Pro	1.3 fl oz/A	imidacloprid - foliar	7	12	H
4A	Belay 2.13SC	9.0 to 12.0 fl oz/A	clothianidin - soil	21	12	H
4A	Belay 2.13SC	3.0 to 4.0 fl oz/A	clothianidin - foliar	7	12	H
4A	Scorpion 35SL	9 to 10.5 fl oz/A	dinotefuran - soil	21	12	H
4A	Scorpion 35SL	2 to 5.2 fl oz/A	dinotefuran - foliar	7	12	H
4A	Venom 70SG	5 to 7.5 oz/A	dinotefuran - soil	21	12	H
4A	Venom 70SG	1.0 to 3.0 oz/A	dinotefuran - foliar	1	12	H
Combo products containing a neonicotinoid						
3A + 4A	Leverage 360*	3.0 fl oz/A	imidacloprid + beta-cyfluthrin	7	12	H

Disease Control

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Recommended Fungicides

Nematode Control

Nematode control is essential for satisfactory parsley production, see sections E 1.5. Soil Fumigation and E 1.6. Nematode Control. Before planting, soil should be fumigated with metam-sodium (Vapam HL) according to directions in section E 1.5.

Seed Treatment

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
For Pythium and Phytophthora Control:						
4	Apron XL ¹	0.085 to 0.64 fl oz/100 lb seed	mefenoxam	n/a	n/a	N
For Control of Other Root Rots:						
12	Maxim 4FS ¹	0.08 to 0.16 fl oz/100 lb seed	fludioxonil	n/a	n/a	L

¹Apron XL and Maxim 4FS can be combined.

Damping-off caused *Pythium* and *Rhizoctonia*

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
For Pythium root rot control, apply as banded spray:						
4	Ridomil Gold 4SL	0.5 to 1.0 pt/A	mefenoxam	AP	48	N
4	MetaStar 2E AG	2.0 to 4.0 pt/A	metalaxyl	AP	48	N
49 + 4	Orondis Gold 1.67SC	13.9 to 27.8 fl oz/A	oxathiapiprolin + mefenoxam	AP	48	--
For Rhizoctonia root rot control, apply as in-furrow application:						
11	azoxystrobin 2.08F	0.40 to 0.80 fl oz/A	azoxystrobin	AP	4	N
For Pythium and Rhizoctonia root rot control apply as banded spray:						
11 + 4	Uniform 3.66SE	0.34 fl oz/1000 ft row	azoxystrobin + mefenoxam	AP	0	N

Bacterial and Fungal Diseases**Bacterial Leaf Blight and Septoria Leaf Spot**

To help reduce disease pressure from bacterial and fungal diseases, rotate with non-related crops for at least 2 years. Space successive plantings in the same year as far apart as possible. Heavy winds and rain may damage leaves and predispose leaves to bacterial infections.

Bacterial leaf blight:

Prevention is key. Avoid working in the fields while the foliage is wet to help reduce spread. Scout fields on a regular basis for early symptoms, apply fixed copper at labeled rates with regular maintenance applications for leaf spot diseases and repeat every 7 days. Some copper-based products are OMRI listed and can be used in organic production systems for the suppression of bacterial and some fungal diseases.

Septoria leaf spot:

The disease causes serious problems in fields where parsley has been grown extensively. Grow parsley in fields without a history of the disease. Plant blocks as far apart as possible. **Early detection and prevention are key. Scout daily and apply fungicides preventatively** before first leaf spots appear in fields with history of the disease. Early season infections (*i.e.*, prior to first cutting) will severely reduce subsequent harvests.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Rotate one of the following every 7 days:						
3	Rhyme 2.08SC ¹	5.0 to 7.0 fl oz/A	flutriafol	7	12	--
3 + 11	Topguard EQ4.29SC ^{1,2}	6.0 to 8.0 fl oz/A	flutriafol + azoxystrobin	7	12	--
with one of the following as long as disease is active:						
7	Fontelis 1.67SC ¹	14.0 to 24.0 fl oz/A	penthiopyrad	3	12	L
7 + 11	Merivon 2.09SC ^{1,2}	4.0 to 11.0 fl oz/A	fluxapyroxad + pyraclostrobin	1	12	N
7 + 12	Miravis Prime ¹	9.2 to 13.4 fl oz/A	pydiflumetofen + fludioxonil	0	12	--
Rotate one of the above FRAC code 3 or 7 fungicides with a FRAC code 11 fungicide where resistance is not present:						
11	azoxystrobin 2.08F ^{1,2}	6.0 to 15.5 fl oz/A	azoxystrobin	0	4	N
11	Cabrio 20EG ^{1,2}	12.0 to 16.0 oz/A	pyraclostrobin	0	12	N

(*) See labels for specific crop use.

¹Tank-mixing the above with a fixed copper may also help suppress bacterial infections.

²Poor control has been noted in areas of southern NJ where FRAC code 11 fungicides have been used extensively to control Septoria leaf spot.

If you are having a medical emergency after using pesticides, call 911 immediately.

If you have any of the following symptoms during or shortly after using pesticides: headache, blurred vision, pinpoint pupils, weakness, nausea, cramps, diarrhea, and discomfort in the chest, call a physician and the National Poison Control Center hotline (1-800-222-1222).

Your call will be routed to your State Poison Control Center.

Anyone with a pesticide exposure poisoning emergency can call the toll-free telephone number for help. Personnel at the Center will give you first-aid information and direct you to local treatment centers if necessary.

For immediate medical attention call 911. Prompt action and treatment may save a life.



In Case of an Accident

- Remove the person from exposure.
- Get away from the treated or contaminated area immediately.
- Remove contaminated clothing.
- Wash with soap and clean water.
- Call a physician and the Poison Control Center (1-800-222-1222) or agency in your state.
- **Have the pesticide label with you! Follow the First Aid Precautionary Statements.**
- Be prepared to give the EPA registration number to the responding center/agency.