

Quadris Opti--2.4-3.6 pt 5.5SC/A, apply in alternation with a fungicide that has a different mode-of-action on 5 to 7 day intervals, or
Cabrio--2.0 oz 20EG/A

If purple blotch and Botrytis blight are present, use the higher rate of Quadris Opti, and if Botrytis blight is severe, also consider tank-mixing with iprodione (Rovral-1.5 pt 4F/A or OLF).

Forum--6.0 oz 4.18SC/A (must be tank-mixed with a product that is effective on downy mildew and has a different mode-of-action)

Purple Blotch (*Alternaria*)

The pathogen overwinters as mold in plant residue from onion-related plants. Purple blotch development is promoted by warm, moist conditions. Grow onions in well drained soil and rotate with non-related crops. Sweet Spanish types are especially susceptible to purple blotch.

Several of the most effective fungicides and mixtures of fungicides for purple blotch are listed below. Applications may be needed every 7 days for proper control. Rotate fungicides in different FRAC codes to slow the development of fungicide resistance (**NOTE:** iprodione applied at the high rate, and Pristine are labeled for use at 14-day intervals):

Quadris--6.0-12.0 fl oz 2.08SC + mancozeb--3.0 lb 75DF/A + fixed copper at labeled rates at 7 to 10 day intervals, or chlorothalonil--1.5-3.0 pt 6F/A or OLF + mancozeb, 3.0 lb 75DF/A + fixed copper at labeled rates at 7 to 10 day intervals (14-day preharvest interval for green bunching onions), or chlorothalonil--1.5-3.0 pt 6F/A or OLF + mancozeb--3.0 lb 75DF/A + Rovral, 1 pt 4F/A at 7 to 10 day intervals (14-day preharvest interval for green bunching onions), or Scala 9.0 oz SC/A + mancozeb--3.0 lb/A + chlorothalonil--1.5 pt/A (also effective against Botrytis leaf blight), or Endura--6.8 oz 70WG/A, or Pristine--10.5-18.5 oz 38W/A at 14-day intervals (also will provide suppression of downy mildew), or Quadris Opti--1.6-3.2 pt 5.5SC/A, or iprodione--1.5 pt 4F/A or OLF at 14-day intervals (for dry bulb onions only), or Switch--11.0-14.0 oz 62.5WG/A at 7 to 10 day intervals, or Switch--11.0-14.0 oz 62.5WG/A + mancozeb, 3 lb 75DF/A + fixed copper at labeled rates at 7 to 10 day intervals.

Botrytis Leaf Blight

The pathogen overwinters in cull piles, on onion debris in the soil, and as sclerotia where related crops were recently grown. Botrytis leaf blight is promoted by moist, cool to mild conditions. Eliminate sources of inoculum and rotate 2 or 3 years between onion-related crops. Fungicide applications can be delayed until there is an average of 1 lesion on 10 leaves.

Apply and alternate between the following:

chlorothalonil--2.0-3.0 pt 6F/A or OLF *plus* fixed copper at labeled rates 7 to 10-day intervals (14-day preharvest interval for green bunching onions), or Quadris Opti (azoxystrobin + chlorothalonil)--1.6-3.2 pt 5.5SC/A, or Endura--6.8 oz 70WG/A, or Pristine--14.5-18.5 oz 38WG/A, or

iprodione--1.5 pt 4F/A or OLF at 14-day intervals (for dry bulb onions only), or Scala--9.0 oz SC/A + mancozeb--3.0 lb/A + chlorothalonil--1.5 pt/A (also effective against purple blotch).

Always alternate between materials from different FRAC codes to reduce chances for fungicide resistance development.

Stemphylium Leaf Blight

Pristine--10.5-18.5 oz/A (will offer suppression to downy mildew at the higher rate), or Cabrio--8.0-12.0 oz 20EG/A (will offer suppression to botrytis leaf blight at the higher rate), or Switch--11.0-14.0 oz 62.5 WG/A, or iprodione--1.5 pt 4F/A or OLF.

White Rot¹

Use one of the following as a preplant soil fumigant and allow a 2- to 3-week waiting period after fumigation before seeding the fall crop:

Telone C-35--13.0-20.5 gal/A, or Vapam HL--50.0-75.0 gal/A, or Folicur--20.5 oz 3.6F/A applied in a 4 to 6 inch band over or into the furrow. Two additional foliar applications 4.0-6.0 fl oz/A may also be applied (dry bulb onion only)

Bacterial diseases (Soft rot, Slippery Skin, Bacterial Canker and Sour Skin)

Plant seed and transplants that are pathogen free. Rotate to a non-host for 2 or more years and eliminate volunteer onions and weeds. Avoid overhead irrigation especially with water that may be contaminated with pathogen(s). Minimize injury to maturing or harvested bulbs. Dry mature bulbs as soon as possible after harvest.

Initiating a fixed copper-based bactericide program as soon as symptoms are first observed has been demonstrated to have limited benefit. Not all copper-based products are created equal and vary by copper content as well as active ingredient(s) (see Table E-8 for a list of available fixed-copper products and check label for rates).

Neck Rot

Windrow plants to ensure dry tops before topping operation.
iprodione--1.5 pt 4F/A or OLF at 14-day intervals (for dry bulb onions only)

PARSLEY

Varieties

Varieties¹

Varieties ¹	
Flat Leaf	These varieties are recommended for DE, MD, NJ, PA, VA, WV
Dark Green Italian (celery leaf)	
Single (overwinter)	
Curly	These varieties are recommended for DE, MD, NJ, PA, VA, WV
Banquet (overwinter)	
Forest Green	
Triple Moss Curled	

¹ Varieties listed alphabetically.

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in Plant Nutrient Recommendations in Section B, Soil And Nutrient Information. These notes provide additional suggestions to adjust rate, timing and placement of nutrients depending on soil type cation exchange capacity and existing fertility levels.

Parsley	Nitrogen (N) Pounds per Acre	Soil Phosphorus Level			Soil Potassium Level		
		Low	Med	Opt.	Low	Med	Opt.
		Pounds P ₂ O ₅ per Acre	Pounds P ₂ O ₅ per Acre	Pounds P ₂ O ₅ per Acre	Pounds K ₂ O per Acre	Pounds K ₂ O per Acre	Pounds K ₂ O per Acre
	150-175 ¹	200 ¹	150 ¹	100 ¹	200 ¹	150 ¹	100 ¹
	50-75 ²	200 ²	150 ²	100 ²	200 ²	150 ²	100 ²
	25-50 ³	0	0	0	0	0	0
	25-50 ⁴	0	0	0	0	0	0

¹ Total amount nutrient recommended

² Broadcast and disk-in

³ Sidedress after first cutting

⁴ Sidedress after each additional cutting

Seeding and Spacing

Seed is sown 1/3 inch deep in a well-prepared seedbed beginning April 5. Later plantings can be seeded through July 10. Spacing between rows is 15 to 18 inches. Usual seeding rate is 20 to 40 pounds per acre. Seed is slow to germinate. If seed is more than 1 year old, have germination checked and adjust seeding rate accordingly.

Weed Control

Section 18 Emergency Label requests may be submitted to supplement weed control recommendations in parsley.

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-2 and E-3.

Match preplant incorporated and preemergence herbicide rates to soil type and percent organic matter in each field.

Apply postemergence herbicides when crop and weeds are within the recommended size and/or leaf stage.

Preplant Incorporated or Preemergence

Bensulide--5-6 lb/A. Apply 5 to 6 quarts per acre Prefar 4E before planting and incorporate 1 to 2 inches deep with power-driven rotary cultivators, or apply preemergence and activate with one-half inch of sprinkler irrigation within 36 hours to control most annual grasses. Use the maximum recommended rate preemergence followed by irrigation to suppress certain annual broadleaf weeds including common lambsquarter, smooth pigweed, and common purslane.

Preemergence

Linuron--0.5-1 lb/A. Apply 1 to 2 pounds per acre Lorox 50DF or 1 to 2 pints Lorox 4L immediately after seeding. Follow with irrigation if rainfall does not occur. Primarily controls broadleaf weeds. Annual grasses may only be suppressed.

Postemergence

Clethodim--0.094-0.125 lb/A. Apply 12 to 16 fluid ounces of Select Max 0.97EC with nonionic surfactant to be 0.25% of the spray solution (1 quart per 100 gallons of spray solution) postemergence to control many annual and certain perennial grasses, including annual bluegrass. Select will not consistently control goosegrass. Control may be reduced if

grasses are large or if hot, dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, or broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 14 days.

Sethoxydim--0.2-0.3 lb/A. Apply 1 to 1.5 pints per acre Poast 1.5EC with oil concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) postemergence to control annual grasses and certain perennial grasses. The use of oil concentrate 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 nonionic surfactant when grasses are small and soil moisture is adequate. Control may be reduced if grasses are large or if hot dry weather or drought conditions occur. For best results, treat annual grasses when they are actively growing and before tillers are present. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, and broadleaf weeds will not be controlled. Do not tank-mix with or apply within 2 to 3 days of any other pesticide unless labeled, as the risk of crop injury may be increased, or reduced control of grasses may result. Observe a minimum preharvest interval of 15 days and apply no more **than 3 pints per acre in one season**. Labeled for use in Parsley and Cilantro.

Postharvest

Paraquat--0.6 lb/A. **A Special Local-Needs 24(c) label has been approved for the use of Gramoxone Inteon 2SC for postharvest desiccation of the crop in Delaware, New Jersey and Virginia.** Apply 2.4 pints per acre Gramoxone Inteon 2SC as a broadcast spray after the last harvest. Add nonionic surfactant according to the labeled instructions. See the label for additional information and warnings.

Insect Control

NOTE: Copies of specific insecticide product labels can be downloaded by visiting websites www.CDMS.org or www.Greenbook.org. Also, specific labels can be obtained via web search engines.

Aphids

acetamiprid (Assail 30SG or OLF)
dinotefuran (soil/foliar-Venom 70SG or OLF)
flonicamid (Beleaf 50SG or OLF)
imidacloprid (soil-Admire 2F, Admire PRO; foliar-Nuprid 1.6F, Provado 1.6F or OLF)
malathion (Malathion 57EC or OLF)
pymetrozine (Fulfill 50WDG)

Armyworms

Bacillus thuringiensis (Biobit, Dipel, Dipel 2X, Javelin, XenTari or OLF)
emamectin (Proclaim 5SG)
indoxacarb (Avaunt 30WDG)
methoxyfenozide (Intrepid 2F)
spinetoram (Radiant 2SC)
spinosad (Entrust 80W, SpinTor 2SC or OLF)

tebufenozide (Confirm 2F)
 thiodicarb (Larvin 3.2F)

Flea Beetles, Leafhoppers, Tarnished Plant Bugs

imidacloprid (soil-Admire 2F, Admire PRO; foliar-Nuprid 1.6F, Provado 1.6F or OLF) **(FB, LH only)**
 beta-cyfluthrin (Baythroid XL)
 permethrin (Pounce 3.2EC or OLF) **(LH only)**
 carbaryl (Sevin 80S or OLF)
 dinotefuran (soil, foliar) (Venom 70SG or OLF) **(LH only)**

Carrot Weevil

azinphos-methyl (Guthion 50WP or OLF)--**A Special Local-Needs Label 24(c) is in effect in New Jersey.**

Pesticide	Use Category ¹	Hours to Reentry	Days to Harvest
INSECTICIDE			
acetamiprid	G	12	7
azinphos-methyl	R	5 days	21
<i>Bacillus thuringiensis</i>	G	4	0
beta-cyfluthrin	R	12	0
carbaryl	G	12	14
dinotefuran (soil/foliar)	G	12	21/7
emamectin	R	48	7
flonicamid	G	12	0
imidacloprid (soil/foliar)	G	12	21/7
indoxacarb	G	12	3
malathion	G	12	21
methoxyfenozide	G	4	1
permethrin	R	12	1
pymetrozine	G	12	7
spinetoram	G	4	1
spinosad	G	4	1
tebufenozide	G	4	7
thiodicarb	G	12	14
zeta-cypermethrin	R	24	1
FUNGICIDE (FRAC code)			
copper, fixed (Group M1)	G	24	0
MetaStar (Group 4)	G	48	45
Quadris (Group 11)	G	4	0
Ridomil Gold (Group 4)	G	48	21
Ultra Flourish (Group 4)	G	48	--

See Table D-6.

¹ G = general, R - restricted

Nematode Control

Nematode control is essential for satisfactory parsley production. See "Nematodes" section of Soil Pests-Their Detection and Control. Before planting, soil should be fumigated with metam-sodium (Busan or Vapam HL) according to directions in the "Soil Fumigation" section.

Disease Control

Damping-off

Apply the following as a soil surface spray immediately after seeding:

mefenoxam (Ridomil Gold 4EC/A--1.0-2.0 pt or 2.0-4.0 pt Ultra Flourish 2E/A), or
 metalaxyl (MetaStar)--4.0-8.0 pt 2E/A

Bacterial leaf blight and Septoria leaf spot

To help reduce disease pressure from bacterial and fungal diseases, do not plant parsley continually in the same field. 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 to reducing spread of the pathogen. Avoid working in the fields while the foliage is wet to help reduce spread. Scout fields on a regular basis for early symptoms, apply the following and repeat every 7 days:

fixed copper at labeled rates.

Tank-mixing a fixed copper with Quadris will also help control Septoria leaf spot.

Septoria leaf spot: The disease has caused serious problems in past years. Severe losses will occur if not controlled properly, especially if field or farm has a history of the disease. Grow parsley in areas of farm without history of disease. Plant blocks as far part as possible. **Early detection and prevention is key to controlling septoria leaf spot.** Scout daily, and apply fungicides preventatively, (before first leaf spots appear), tank-mix or rotate the following every 7 days. Early season infections (ie. prior to first cutting) will severely reduce subsequent harvests.

Apply:

Quadris--6.0-15.5 fl oz 2.08SC/A plus
 copper, fixed--at labeled rates.

Note: Do not make more than 4 applications of Quadris per growing season.

Tank-mixing Quadris with a fixed copper may also help reduce bacterial infections.