RUTGERS UNIVERSITY
Cooperative Extension
New Jersey Agricultural Experiment Station

This is a section from the

2026/2027
Mid-Atlantic Commercial Vegetable Production Recommendations

The recommendations are **NOT** for home gardener use.

The **full manual**, containing recommendations specific to New Jersey, can be found on the Rutgers NJAES website in the Publications section at: *https://njaes.rutgers.edu/pubs/publication.php?pid=e001*.

This manual will be revised biennially. **In January 2027, a Critical Update** with important updates to the 2026/2027 manual will be communicated through local Extension Agents and Vegetable Specialists.

The **label** is a legally-binding contract between the user and the manufacturer. The user must follow all rates and restrictions as per label directions. The use of any pesticide inconsistent with the label directions is a violation of federal law.

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Commissioners. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

2026/2027
Mid-Atlantic Commercial Vegetable Production Recommendations

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

POISON Help®

1-800-222-1222

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/or the National Poison Control Center (1-800-222-1222).
  Your call will be routed to your State Poison Control Center.
- Have the pesticide label with you!
- Be prepared to give the EPA registration number to the responding center/agency

Leeks

Recommended Varieties

Check with your seed supplier or other growers for recommendations on locally adapted varieties. Any new variety should be tested on a small scale before planting in a large area.

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 the recommendations found below.

		Soil Phosphorus Level				Soil Potassium Level				
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
Leeks[1,2]	**N (lb/A)**	**P_2O_5 (lb/A)**				**K_2O (lb/A)**				**Nutrient Timing and Method**
	100-125	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 3-4 weeks after planting if needed

[1]Apply 3-4 lb/A of boron (B) with broadcast fertilizer; see also Table B-7. in Chapter B Soil and Nutrient Management.
[2]Apply 25-30 lb/A of sulfur (S) for most soils.

Seeding and Transplanting

For early spring plantings, southern transplants are used. For summer plantings, sow in seedbeds or transplant trays from early March to mid-May. About 2 lb of seed are required to provide enough plants to set an acre. Plant seed 1/3 to ½ inch deep 12-16 weeks before field setting. Transplants can be produced in 200-288 deep cell trays. Plants will be ready to set in early August. Spring leeks should be seeded approximately the third week of December and the fall crop approximately the first week of June.

Field Spacing

Rows 20-30 in. apart; plants 4-6 in. apart in the row. Set plants in trenches 3-4 in. deep using celery-type planter.

Culture

Leeks grow slowly for the first 2 or 3 months. To develop a long white stem, start to gradually fill in trenches and then hill soil around stems. Depending on the season it may require up to 20 hilling's to produce long white shank

Harvest and Post-Harvest Considerations

Spring-transplanted leeks are ready for harvest in July. August-planted leeks are ready for harvest by November or can be overwintered. Half-mature leeks of the hardy varieties will stand winter freezing with some protection such as salt hay or straw if planted in very cold areas. In mild winter areas no protection is required, and leeks will be ready for harvesting early in the spring. Undercut the leeks with a bar on a tractor or for smaller plantings dig with a spading fork.

After digging, leeks can be left in the field to dry for a short period. Leeks are bunched with 3-4 leeks per bunch. If soil sticks to the leeks, power wash the bunches before packing. If necessary, leeks can be cooled by icing in the box, hydrocooling or vacuum cooling with a water spray. Store leeks at 32°F and 95-100% relative humidity. Typical storage time is 7-21 days, but up to 2 months is possible.

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 (Preemergence)

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
3	Prowl H2O 3.8CS	2 pt/A	**pendimethalin**	0.95 lb/A	30	24

-Apply at time of seeding or postemergence; **do not** mechanically incorporate. -**Do not** apply preemergence to leeks planted on mineral soils with less than 3% organic matter or injury may occur. Seed must be fully covered by soil; injury may occur if seed is exposed. Prowl H2O can be applied directly over emerged plants with 2 to 3 true leaves without crop damage. -If sequential applications are made, allow 30 days between applications. -Primarily controls annual grasses and certain broadleaf weeds.
-**Do not** apply more than 2 pt/A per application; and **do not** apply more than 4 pt/A per season.

2. Postemergence

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
1	Shadow 3EC	4 to 5.33 fl oz/A	**clethodim**	0.07 to 0.125 lb/A	14	24
	Fusilade DX 2EC	8 to 24 fl oz/A	**fluazifop**	0.125 to 0.375 lb/A	14	12
	Poast 1.5EC	1 to 1.5 pt/A	**sethoxydim**	0.2 to 0.3 lb/A	30	12

-**Shadow 3EC**: use crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution) for large or stressed grasses; use nonionic surfactant (NIS) at 0.25% v/v (1 qt/100 gal of spray solution) when crop safety is a concern. **Fusilade DX:** use COC at 1.0% v/v (1 gal/100 gal of spray solution) or NIS at 0.25% v/v (1 qt/100 gal of spray solution). **Poast 1.5EC**: use COC at 1.0% v/v.
-**General comments:** -The use of COC may increase the risk of crop injury when hot or humid conditions prevail. To reduce the risk of crop injury, 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. For best results, treat annual grasses when they are actively growing and before tillers are present. -Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will **not** be controlled with these herbicides. -These herbicides control many annual and certain perennial grasses. Clethodim is best on annual bluegrass; while Poast is preferred for goosegrass control. -Repeated applications may be necessary to control certain perennial grasses. If repeat applications are necessary, allow 14 days between applications.
-Rainfastness is 1 h.
-**Do not** tank mix with or apply within 2 or 3 days of any other pesticide unless labeled. The risk of crop injury may be increased, or reduced control of grasses may result. -**Do not** apply more than 5.33 fl oz/A of Shadow 3EC in a single application and **do not** apply more than once per season. -**Do not** apply more than 24 fl oz/A of Fusilade DX in a single application and **do not** exceed 3 pt/A per season. **Do not** apply more than 1.5 pt/A Poast in a single application and **do not exceed** 4.5 pt/A for the season.

15	Dual Magnum	0.67 to 1.33 pt/A	**s-metolachlor**	0.64 to 1.27 lb/A	21	24

-**Special Local Needs Label 24(c) for the use of Dual Magnum in leeks in NJ (expires 1/28/2027). The use of Dual Magnum is legal ONLY if a waiver of liability has been completed (see: *https://www.syngenta-us.com/labels/indemnified-label-login*).**
-Apply after leeks have reached the 2 true leaf stage of growth; Dual Magnum will not control weeds that have emerged at time of application. -Use lower rate on lighter coarse-textured sandy soils and the higher rate on heavier fine-textured soils. **Do not** use on coarse textured soils with less than 1% organic matter. -Follow with overhead irrigation if rainfall does not occur.
-Primarily controls annual grass and certain broadleaf weeds, including galinsoga preemergence.
-**Do not** apply more than once per crop season and **do not** exceed 1.33 pt/A per crop season.

3. 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
15	Outlook	**dimethenamid**
15	Zidua	**pyroxasulfone**

Insect Control

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

Recommended Insecticides

Note: For **premixes**, the group number (representing the mode of action) and active ingredient that contributes the most to control is generally listed first. In some cases, only one ingredient in a premix provides control.

Allium Leafminers

This new pest to the Mid-Atlantic area is a long grey-black fly with a distinctive yellow or orange patch on the top of its head, yellow sides, and "knees" (femur-tibia junction), and white halteres (knobs as second pair of wings). The larvae are a typical, whitish maggot. Leek (*A. porrum*) and scallions (green onions) tend to be the most damaged Allium species or cultivars. Females repeatedly puncture leaves with their ovipositor, resulting in a line of small white dots. Leaves can be wavy, curled, and distorted. The larvae mine leaves and move into bulbs and leaf sheathes where they pupate. Covering plants in April-May, or September-October, during the adult flights can exclude the

pest. Avoid the adult oviposition period by delaying planting of spring allium crops. Systemic and contact insecticides can be effective.

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*	2.24 to 4.0 fl oz/A	zeta-cypermethrin	7	12	H
4A	Scorpion 35SL	8.75 to 10.5 fl oz/A	dinotefuran - **soil**	AP	12	H
4A	Scorpion 35SL	5.25 to 7.0 fl oz/A	dinotefuran - **foliar**	1	12	H
4A	Venom 70SG	5.0 to 6.0 oz/A	dinotefuran - **soil**	AP	12	H
4A	Venom 70SG	3.0 to 4.0 oz/A	dinotefuran - **foliar**	1	12	H
5	Entrust SC (OMRI)	3.0 to 6.0 fl oz/A	spinosad	1	4	H
5	Radiant SC	6.0 to 10.0 fl oz/A	spinetoram	1	4	H
17	Trigard 75WSP	2.66 oz/A	cyromazine	7	12	H
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28 + 6	Minecto Pro*[1]	7.0 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
30	Vertento	1.1 to 2.0 fl oz/A	isocycloseram	7	12	H

[1]Use of a non-sticker adjuvant is required.

Aphids

Aphids found on leeks and other related vegetables are usually dark red or black. They are attracted to the compounds in Allium species that give them their distinctive smell. They walk short distances between plants and spread over long distances via air currents. They can survive on volunteer plants or on bulbs in storage. Aphids suck the sap causing plants to collapse. Look for aphids on leaves in the early to mid-season.

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	1.5 to 2.0 pt/A	malathion	3	24	H
3A	Mustang Maxx*	2.24 to 4.00 fl oz/A	zeta-cypermethrin	7	12	H
23	Spirotetramat 360	3.4 fl oz/A	spirotetramat	7	24	L

Armyworms (AW), Cutworms (CW), Cabbage Loopers (CL)

These lepidopteran pests (caterpillars) come in various colors and shapes and can be found from the beginning until the end of the season. Cutworms are found very early in the season. They are immigrants from southern regions or have passed the winter in the area as pupae. Lepidopteran pest infestations are sporadic; no reliable methods have been found for predicting their occurrence. Plants should be scouted from planting until harvest for foliar feeding.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
3A[1]	Mustang Maxx*	2.24 to 4.0 fl oz/A	zeta-cypermethrin	7	12	H
5	Entrust SC (OMRI)	3.0 to 6.0 fl oz/A	spinosad **- AW and CL**	1	4	H
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram **- AW and CL**	1	4	H
11A	DiPel DF, others (OMRI)	1.0 to 2.0 lb/A	*Bacillus thuringiensis kurstaki*	0	4	N
11A	XenTari (OMRI)	1.0 to 2.0 lb/A	*Bacillus thuringiensis azaiwai*	0	4	N
18	Intrepid 2F	4.0 to 8.0 fl oz/A	methoxyfenozide **- AW**	1	4	L
28[1]	Coragen 1.67SC Coragen eVo, Vantacor	3.5 to 7.5 fl oz/A 1.2 to 2.5 fl oz/A	chlorantraniliprole **- AW**	1	4	L

[1]Resitance concerns with beet armyworm.

Onion Maggots

This pest is more important in onions, but it can also be a problem in leeks. Planting successive crops of any Allium species in the same field increases the likelihood of maggot damage. Adults resemble small, slender house flies. There are 3 generations each year, but the spring generation is generally most damaging. Flies live for 2-4 weeks and can migrate about a mile in search of suitable hosts. Females oviposit on the soil near the plants or occasionally on the young leaves or plant necks. Maggot feeding causes wilting of foliage, after which it collapses. Larger leeks may survive but have distorted growth. Control should target adult flies as a preventative measure. Control is warranted if a field experienced more than 5% damage the previous year. Overwinter flight peaks around 735 DD (base temperature of 40°F; see section E.3.1 Using Degree Days to Predict Development Stages of Pests).

Onion Maggots *- continued*

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*	2.24 to 4.00 fl oz/A (adults only)	zeta-cypermethrin	7	12	H

Thrips Thrips pierce plant tissue and remove liquids. Immature thrips often feed on young tissue between the leaf sheaths and the stem, adults feed on more mature tissue. Feeding injury results in whitish or chlorotic blotches. Extended feeding can reduce bulb size and increase leaf and bulb rots. Effective management relies on high pressure, high gallonage sprays for thorough coverage and penetration into the foliage.

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	1.5 to 2.0 pt/A	malathion	3	24	H
3A[1]	Mustang Maxx*	2.88 to 4.00 fl oz/A	zeta-cypermethrin	7	12	H
4A[2]	Assail 30SG	5.0 to 8.0 oz/A	acetamiprid	7	12	M
4A[2]	Assail 30SC	4.2 to 6.7 fl oz/A	acetamiprid	7	12	M
4A[2]	Scorpion 35SL	8.75 to 10.5 fl oz/A	dinotefuran - **soil**	AP	12	H
4A[2]	Scorpion 35SL	5.25 to 7.0 fl oz/A	dinotefuran - **foliar**	1	12	H
4A[2]	Venom 70SG	5.0 to 6.0 oz/A	dinotefuran - **soil**	AP	12	H
4A[2]	Venom 70SG	3.0 to 4.0 oz/A	dinotefuran - **foliar**	1	12	H
5	Entrust SC (OMRI)	3.0 to 6.0 fl oz/A	spinosad	1	4	H
5	Radiant SC	6.0 to 10.0 fl oz/A	spinetoram	1	4	H
23	Boxadon 360	3.4 fl oz/A	spirotetramat	7	24	L
23	Movento	5.0 fl oz/A	spirotetramat - **larvea**	3	24	L
23+7C	Senstar	10.0 fl oz/A	spirotetramat + pyriproxyfen	7	24	L
28 + 6	Minecto Pro*[3]	7.0 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
30	Vertento	1.1 to 2.0 fl oz/A	isocycloseram	7	12	H

[1]Resistance concerns with western flower thrips. [2]Resistance concerns with tobacco thrips. [3]Use of a non-sticker adjuvant is required.

Disease Control

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

Damping-off caused by *Phytophthora*, *Pythium*, and *Rhizoctonia*

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
FOR SEEDED BEDS: (Note: Apron XL and Maxim 4FS can be combined**).**						
For Pythium and Phytophthora control, use a seed treatment such as:						
4	Apron XL	0.085 to 0.64 fl oz/100 lb seed	mefenoxam	n/a	n/a	N
For control of other root rots apply:						
12	Maxim 4FS	0.08 to 0.16 fl oz/100 lb seed	fludioxonil	n/a	n/a	L
FOR TRANSPLANTED BEDS:						
For Pythium root rot control apply one of the following as a 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
For Rhizoctonia root rot control apply as in-furrow application:						
11	azoxystrobin 2.08F	0.40 to 0.80 fl oz/1000 ft row	azoxystrobin	0	4	N
For Pythium and Rhizoctonia root rot control apply as banded spray application:						
4 + 11	Uniform 3.72SC	0.34 fl oz/1000 ft row (see label)	mefenoxam + azoxystrobin	AP	0	N

Bacterial and Fungal Diseases

Downy Mildew (*Peronospora destructor*) Downy mildew on leeks is caused by the same pathogen on onion and garlic. Its development is promoted by cool, moist conditions. Management begins with planting

pathogen-free seed or sets and crop rotations of at least 3 years without related crops. Be sure to eliminate culls and volunteers from the field.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply one of the following preventatively prior to the onset of disease.						
M05	chlorothalonil 6F	1.5 to 3.0 pt/A[1]	chlorothalonil	14	12	M
40	Forum 4.17SC	6.0 fl oz/A[2]	dimethomorph	0	12	N
Rotate one of the following FRAC code 7 or 11 fungicides every 7 d when conditions favor disease development or when symptoms are present in the field:						
7	Fontelis 1.67SC	16.0 to 24.0 fl oz/A	penthiopyrad	0	12	L
7 + 11	Merivon Xemium	8.0 to 11.0 fl oz/A (for suppression)	fluxapyroxad + pyraclostrobin	7	12	N
7 + 11	Pristine 38WG	18.5 oz/A (for suppression)	boscalid + pyraclostrobin	7	12	--
11	azoxystrobin 2.08F	9.0 to 15.5 fl oz/A	azoxystrobin	0	4	N
11	Cabrio 20EG	12.0 oz/A	pyraclostrobin	7	12	N
Rotate one of the above with the following every 7 d as long as weather conditions favor disease development:						
3	tebuconazole 3.6F	4.0 to 6.0 fl oz/A	tebuconazole	7	12	N
40 + 45	Zampro 525SC	14.0 fl oz/A	dimethomorph + ametoctradin	0	12	--
49+M05	Orondis Opti	1.75 to 2.5 pt/A	oxathiapiprolin + chlorothalonil	0	12	--

[1] Do not apply chlorothalonil more than 3 times per season. [2] Forum 4.17SC must be tank mixed with another fungicide effective for Downy mildew.

Fusarium Basil Rot

Leaf tips of infected plants will turn yellow and curl and eventually entire leaves will become chlorotic, turn brown and decay. Infected roots will turn dark brown. The outermost layers of infected bulbs will have a watery, brown discoloration. White mycelium may be present. The pathogen can survive in the soil for many years. Rotate away from leeks, garlic, or onions for 4-5 years minimum. Avoid excess fertility. Insect feeding damage can increase basil rot; control onion maggot and other insects that may feed on bulbs.

Purple Blotch

Begin preventative applications in the fall as soon as transplants are set out especially in fields with a history of the disease. Rotate the following at 7-10 d intervals as long as night temperatures remain warm and there are extended periods of leaf wetness.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply the following preventatively prior to the onset of disease. Do not apply chlorothalonil more than 3 times per season.						
M05	chlorothalonil 6F	1.5 to 3.0 pt/A	chlorothalonil	14	12	M
Tank mix the above with one of the following FRAC code 3, 7, or 11 fungicides when conditions favor disease development or when symptoms are present in the field. Rotate fungicides with different modes of action.						
3 + 9	Inspire Super 2.82EW	16.0 to 20.0 fl oz/A	difenoconazole + cyprodinil	7	12	--
3 + 11	Quadris Top 1.67SC	12.0 to 14.0 fl oz/A	difenoconazole + azoxystrobin	7	12	--
7	Endura 70WG	6.8 oz/A	boscalid	7	12	--
7	Fontelis 1.67SC	16.0 to 24.0 fl oz/A	penthiopyrad	0	12	L
7 + 9	Luna Tranquility 4.16SC	16.0 to 27.0 fl oz/A	fluopyram + pyrimethanil	7	12	--
7 + 11	Pristine 38WG	10.5 to 18.5 oz/A	boscalid + pyraclostrobin	7	12	--

White Rot (*Sclerotium cepivorum*)

White Rot is severe only on overwintered leeks. Cool, moist soil conditions that are favorable for the growth of leek, garlic and onion are also ideal for white rot. Infection occurs at soil temperatures between 50-75°F (60-65°F optimum). The disease is greatly inhibited above 78°F. Sclerotia can survive for over 20 years, even in the absence of a host plant. In treated fields, do not grow crops other than leek and leafy vegetables during the harvest year, and do not grow leeks, garlic, leafy vegetables, tomatoes, root crops, cereal grains or soybeans the following year.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply the following fungicide at 10-14 d intervals (for suppression only):						
3	tebuconazole 3.6F	4.0 to 6.0 fl oz/A	tebuconazole	7	12	N
3 + 7	Luna Experience 3.34SC	8.0 to 12.8 fl oz/A	tebuconazole + fluopyram	7	12	--
9 + 12	Switch 62.5WG	0.5 to 1.0 fl oz/1000 ft row	cyprodinil + fludioxonil	7	12	L