

This is a section from the

2016

Mid-Atlantic

Commercial Vegetable Production Recommendations

The manual, which is published annually, is 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
njaes.rutgers.edu

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.

PEAS (Succulent)

Recommended Processing Pea Varieties¹

Variety	Season	Heat Units	Leaf Type	Reported Disease Reaction ²
Jumpstart	First Early	1110	normal	F1
Strike	First Early	1140	normal	F1
Icebreaker	First Early	1155	afila	F1
Salinero	First Early	1155	normal	F1, DM(I)
June	Early	1160	normal	F1
Cabree	Early	1170	normal	F1
Icepack	Early	1170	afila	F1
Dakota	Midseason	1190	normal	F1, PM
Marias	Midseason	1290	normal	F1
Ashton	Late	1480	normal	F1, DM(I)
Bolero	Late	1480	normal	F1
Grundy	Late	1595	normal	F1

¹Use varieties recommended by processors. Local adaptation and quality needs of processors must be considered. Consult the University of Delaware Extension Program website for results from recent processing pea variety trials: ag.udel.edu/extension/vegprogram/index.htm.

²Reported disease reactions from source companies. Resistant to Fusarium wilt race 1 (F1), Resistant to Powdery mildew (PM), or has intermediate resistance to Downy mildew (DM(I))

Recommended Pea Varieties for Fresh Market

Variety	Use	Days	Height ¹ (inches)	Reported Disease Reaction ²
Bolero	Shelled	68	30	F1
Green Arrow	Shelled	70	30	PM
Knight	Shelled	61	19	F, PM
Lincoln	Shelled	67	30	F
Maestro	Shelled	60	22	PM
Mr. Big	Shelled	60	30	F1, PM
Progress #9	Shelled	62	16	
Strike	Shelled	49	24	F
Dwarf Gray Sugar	Snow	74	28	
Oregon Sugar Pod #2	Snow	60	28	F1, PM
Sugar Ann	Snap	55	26	
Sugar Snap	Snap	60	72	F1
Super Sugar Snap	Snap	58	60	F1, PM
Sugar Sprint	Snap	55	26	PM

¹Peas that are greater than 24 inches high may require trellising

²Reported disease reactions from source seed companies. Resistant to Fusarium wilt race 1 (F1), general Fusarium wilt resistant (F), or is Powdery mildew resistant (PM)

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in the Soil and Nutrient Management chapter in Section B and your soil test report. These notes and soil test reports provide additional suggestions to adjust rate, timing, and placement of nutrients. Your state's soil test report recommendations and/or your farm's nutrient management plan supercede recommendations found below.

Pounds N per Acre	Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
	Low	Med	High (Opt.)	Very High	Low	Med	High (Opt.)	Very High	
40-80	120	80	40	0 ¹	120	80	40	0 ¹	Total nutrient recommended.
40-80	120	80	40	0 ¹	120	80	40	0 ¹	Broadcast and disk-in.

¹In Virginia, crop replacement values of 20 lbs. P₂O₅ and 20 lbs. K₂O per acre are recommended on soils testing Very High.

Seed Treatment

Use seed already treated with an approved seed treatment, or treat seed with a slurry or dust that contains an approved commercial fungicide-insecticide mixture. See the Disease Control section for more information.

Seeding and Spacing

Peas thrive in cool weather and can tolerate light frost. Planting for processing is based on the heat-unit theory. Peas can be planted between February 25 and April 30 when soil conditions are favorable. For processing peas, drill 250 to 275 pounds of seed per acre in rows 6 to 8 inches apart. For fresh market peas, seed 80 to 120 pounds per acre (25 seeds per foot in a band) in 30-36 inch rows. Sow at a depth of no more than 1 inch unless soil is dry. Use press wheel drill or seeder to fix seeds into soil.

There is the potential for mid-late summer plantings for fall harvest where local markets exist. Fall plantings usually exhibit much lower yields than spring plantings.

Harvest and Post Harvest Considerations

Processing peas are mature from May 20 through July 5. Pick shelling types while they are firm, but still succulent. Harvest snow peas before seed swelling becomes too pronounced. Crisp fleshy snap types should be picked when they are round and firm, but still succulent. Peas in pod, shelled peas, and edible pod peas lose part of their sugar content, on which much of their flavor depends, unless they are promptly cooled to near 32°F immediately after harvest and maintained at a relative humidity of 90-95%. Forced air cooling, using 32°F air at 90-95% humidity, is preferred since it does not result in surface moisture formation, and minimizes the risk of decay. After precooling, the peas should be packed with crushed ice (top ice) to maintain freshness and turgidity. Top ice provides the desired high humidity (≥95%) to prevent wilting. The ideal storage temperature at 32°F and temperatures must not be allowed to exceed 34°F when any surface moisture is present on the peas or rapid decay and deterioration will occur. Edible pod peas, peas in pod, and shelled peas cannot be expected to be salable for more than 1 to 2 weeks even at 32°F unless packed in crushed ice. With top ice, the storage period may be extended a week.

Pea Shoots

Peas may also be grown for shoots for local markets. Planting and spacing is the same as for other peas. Snap pea and snow pea varieties are preferred for shoots. When plants are 8-12 inches tall, clip off the growing points plus one pair

of leaves to encourage branching. These clippings can be used as a first pea shoot harvest. Keep clipping the top 2 to 6 inches of each plant after regrowth, every three to four weeks. Harvested pea shoots should include the top pair of small leaves, delicate tendrils and a few larger leaves and blossoms or immature buds. Select undamaged shoots that are fresh, crisp and bright green. A single planting can be harvested until shoots begin to taste bitter. Pea shoots for fall harvest are planted mid-late summer and are harvested until a hard freeze. Pea shoots may also be grown in high tunnels throughout the fall, winter, and early spring. Pea shoots have a short storage life and should be marketed within 2 days after harvest. Rapidly precool pea shoots to 32°F, and store at 32-34°F and 98-100% relative humidity. Freezing will damage leaf tissues, so maintain storage temperatures above 28°F (-2°C)

Weed Control

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-3 and E-4.

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.

Determine the preharvest interval (PHI) for the crop. See Table E-4 and consult the herbicide label.

Find the herbicides you plan to use in the Herbicide Resistance Action Committee's (HRAC) **Herbicide Site of Action Table E-8** and follow the recommended good management practices to minimize the risk of herbicide resistance development by weeds in your fields.

Preplant Incorporated or Preemergence

Imazethapyr--0.024 to 0.032 lb/A. Apply 1.5 to 2.0 fluid ounces per acre Pursuit 2SC. Shallow, thorough incorporation improves consistency of performance when dry weather follows application. Primarily controls broadleaf weeds. Use in combination with another herbicide to control annual grasses. Pursuit residues persist in the soil after harvest and may affect following crops. Incorporation may increase the persistence of soil residues. Do not make more than one application of Pursuit per acre per year. Follow label instructions pertaining to following crops.

Preemergence

Clomazone--0.188 to 0.380 lb/A. Apply 8.0 to 16.0 fluid ounces Command 3ME preemergence to control annual grasses and many annual broadleaf weeds, except pigweed sp. Use the lower rate on coarse-textured soils low in organic

matter and higher rates on fine-textured soils and on soils with high organic matter. Some temporary injury, seen as a partial whitening of leaf and/or stem of the crop, may be observed after seedling emergence. Complete recovery from early injury will occur without affecting yield or delaying maturity.

WARNING: Command spray or vapor drift may injure sensitive crops and other vegetation up to several hundred yards from the point of application. DO NOT apply when wind or weather conditions favor spray drift. Avoid preemergence applications when fields are adjacent to horticultural, fruit, vegetable, or other sensitive crops (see label). Drift injury from off-site Command movement is extremely apparent; therefore, do not use Command on fields near sensitive locations.

Herbicide residues may limit subsequent cropping options when Command is used for weed control in peas. See planting restrictions on the label or consult your local Cooperative Extension office for information regarding subsequent cropping options when Command has been used for weed control in peas.

S-metolachlor--0.48 to 0.96 lb/A. Apply 0.5 to 1.0 pints per acre Dual Magnum 7.64E (or OLF). Primarily controls annual grasses, suppresses yellow nutsedge, and suppresses or controls certain annual broadleaf weeds including pigweed species and nightshade species. Common lambsquarters and common ragweed will NOT be controlled. Recommended rates may be lower than the labeled rate to reduce the risk of crop injury. The use of less than 1 pint of Dual Magnum may reduce the duration or level of control of some weeds. Cold wet weather after application increases the risk of crop injury, which may delay maturity. Use the minimum recommended rate, or choose another herbicide when cold wet weather is anticipated after planting. DO NOT use Dual Magnum on peas in Nassau County or Suffolk County, New York. **Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop.**

Postemergence

Bentazon--0.75 to 1.0 lb/A. Apply 1.5 to 2.0 pints per acre Basagran 4SC after peas have more than three pairs of leaves. Do not add oil concentrate. Ground application in a minimum of 20 gallons per acre is preferred. For broadleaf weed control only. See label for weed size for effective control.

Clethodim--0.094 to 0.125 lb/A. Apply 12.0 to 16.0 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 21 days.

Quizalofop-P-ethyl--0.04 to 0.08 lb/A. Apply 6.0 to 12.0 fluid ounces Assure II/Targa 0.88EC per acre postemergence to control most annual and perennial grasses. Add with oil

concentrate to be 1 percent of the spray solution (1 gallon per 100 gallons of spray solution) or nonionic surfactant to be 0.25 percent of the spray solution (1 quart per 100 gallons of spray solution). 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 other pesticides 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 14 fluid ounces per acre in one season.

Sethoxydim--0.2 to 0.3 lb/A. Apply 1.0 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, or broadleaf weeds will not be controlled. Do not tank-mix with or apply within one week before or after Basagran or any other pesticide unless labeled. 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 4 pints per acre in one season.

Postharvest

Paraquat--0.6 lb/A. **A Special Local-Needs 24(c) label has been approved for the use of Gramoxone SL 2.0 or OLF for postharvest desiccation of the crop in Delaware, New Jersey and Virginia.** Apply 2.4 pints per acre Gramoxone SL 2.0 or OLF 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

THE LABEL IS THE LAW. PLEASE REFER TO THE LABEL FOR UP TO DATE RATES AND RESTRICTIONS

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

Soil Pests:

Seed Maggots

Seed Applied Treatments:
chlorpyrifos Lorsban 50W *commercially applied seed treatment only*
thiamethoxam (Cruiser 5FS) *commercially applied seed treatment only*

Above-ground Pests:

Armyworms

Apply one of the following formulations:
bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper or OLF)

chlorantraniliprole--3.5 to 5.0 fl oz/A Coragen 1.67SC
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin + chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege
 methomyl--1.5 to 3.0 pts/A Lannate LV
 spinetoram--4.0 to 8.0 fl oz/A Radiant SC (**Except Yellow Striped Armyworm**)
 spinosad--2.2 to 3.3 oz/A Blackhawk 36WG
 zeta-cypermethrin--2.72 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Cutworms

See the Chapter E "Cutworms" section in Soil Pests--Their Detection and Control.

Apply one of the following formulations:

bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper or OLF)

diazinon--2.0 to 4.0 qts/A Diazinon AG500 (or OLF)

NOTE: Must be broadcast just before planting and immediately incorporated into the soil

esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 lambda-cyhalothrin--0.96 to 1.60 fl oz/A Warrior II or 1.92 to 3.20 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin + chlorantraniliprole--5.0 to 8.0 fl oz/A Besiege
 zeta-cypermethrin--1.28 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Pea Aphid

Treat when there are 5 to 10 aphids per plant or 50 or more aphids per sweep in a 15-inch sweep net. Apply one of the following formulations:

acetamiprid--2.5 to 5.3 oz/A Assail 30SG (or OLF)
 dimethoate--0.32 pt/A Dimethoate 400 4EC (or OLF) **Not for Use On Field Peas**

esfenvalerate--2.9 to 5.8 fl oz/A Asana XL
 flupyradifurone--**foliar** - 7.0 to 10.5 fl oz/A Sivanto 200SL
 imidacloprid--**soil** 7.0 to 10.5 fl oz/A Admire PRO (or OLF), **foliar** 1.2 fl oz/A Admire PRO (or OLF)
 methomyl--1.5 to 3.0 pts/A Lannate LV

Pesticide	Use Category ¹	Hours to Reentry	Days to Harvest ²
INSECTICIDE			
acetamiprid	G	12	7
bifenthrin	R	12	3
chlorantraniliprole	G	4	1
chlorpyrifos-seed treatment	R	see label	see label
diazinon	R	72	see label
dimethoate	R	48	see label
esfenvalerate	R	12	3
flubendiamide	G	12	1
flupyradifurone	G	4	7
imidacloprid (soil/foliar)	G	12	21/7
lambda-cyhalothrin	R	24	7

(table continued next column)

Pesticide	Use Category ¹	Hours to Reentry	Days to Harvest ²
INSECTICIDE (continued)			
lambda-cyhalothrin+			
chlorantraniliprole	R	24	7
methomyl	R	48	see label
spinetoram	G	4	3
spinosad	G	4	3
thiamethoxam-seed treatment	G	12	see label
zeta-cypermethrin	R	12	1
zeta-cypermethrin+bifenthrin	R	12	3
FUNGICIDE (FRAC code)			
azoxystrobin (Group 11)	G	4	0
Contans WG (biological)	G	4	0
Endura (Group 7)	G	12	7
Headline (Group 11)	G	12	7
MetaStar (Group 4)	G	48	--
Priaxor (Groups 7 + 11)	G	12	7
sulfur (Group M2)	G	24	--
Ridomil Gold (Group 4)	G	48	--
Ultra Flourish (Group 4)	G	48	AP
Uniform (Groups 4 + 11)	G	0	AP

See Table D-6.

¹ G = general, R = restricted, AP = At planting

² AP = At Planting

Disease Control

Seed Treatment

Use seed already treated with an approved seed treatment, or treat seed with a slurry or dust that contains an approved commercial fungicide-insecticide mixture. For disease control, use seed treated with Maxim 4FS (0.08 to 0.16 fl oz/100 lb seed) for *Rhizoctonia* and *Fusarium* control and Apron XL (0.16 to 0.64 fl oz/100 lb seed) or Allegiance FL (0.75 fl oz/100 lb) for *Pythium* control.

Damping-Off and Root Rot

Rotate and allow 4 to 5 years between pea plantings. Do not double crop with legume of any type. For damping-off and root rot caused by *Pythium*, apply the following as a broadcast treatment at seeding:

mefenoxam--(Ridomil Gold--0.5 to 1.0 pt 4SL/A or Ultra Flourish--1.0 to 2.0 pt 4E/A) (*Pythium* only)
 MetaStar--2.0 to 4.0 pt 2E/A (*Pythium* only)
 azoxystrobin--0.40 to 0.80 fl oz 2.08F/1000 ft row or OLF (*Rhizoctonia* only)
 Uniform--0.34 fl oz 3.66SE/1000 ft of row in-furrow (see label for specific details) for *Pythium* and/or *Rhizoctonia*

Downy Mildew (*Peronospora viciae*)

Plant resistant varieties. Avoid planting next to the previous year's pea fields because the disease can overwinter on old debris. Downy mildew is seed-borne and using seed treatments that are effective for downy mildew such as Allegiance FL or Apron XL can prevent primary systemic infections. Downy mildew development is favored by prolonged cool, wet weather conditions. Control strategies include crop rotations of 3 years or more.

White Mold

Preplant. Apply 3 to 4 months prior to the onset of disease to allow the active agent to reduce inoculum levels of sclerotia in the soil. Following application, incorporate to a depth of 1 to 2 inches but **do not plow** before seeding peas to

avoid untreated sclerotia in lower soil layers from infesting the upper soil layer:

Contans--2.0 to 4.0 lb 5.3WG/A

At the beginning of flowering or prior to onset of disease apply:

Endura--8.0 to 11.0 oz 70W/A (7 to 10 day interval, no more than 2 applications per growing season).

Priaxor--6.0 to 8.0 fl oz 4.17SC /A (suppression only)

Fusarium Wilt

Use resistant varieties if available. Plant as early possible minimize crop growth when soil temperatures are ideal for Fusarium wilt development (68 to 72°F).

Viruses

Use resistant varieties when possible and manage aphid populations .

Bacterial Blight

The pathogen can be seedborne so source high quality seed. Avoid walking or moving equipment through fields when vines are wet. This will further spread the disease.

Ascochyta Blight

Ascochyta blight is favored by long periods of leaf wetness and heavy growth of vines that creates a moist chamber effect under the pea vine canopy. Plant fungicide treated seed. Deeply incorporate crop debris immediately after harvest before the fungus can be dispersed by wind or rain. Scout on a regular basis because pathogen can develop and spread rapidly. In fields with a history of blight apply one of the following fungicides preventatively:

azoxystrobin --6.0 to 15.5 fl oz 2.08F/A or OLF

Headline--6.0 to 9.0 fl oz 2.1EC/A

Endura--8.0 to 11.0 oz 70W/A

Priaxor--4.0 to 8.0 fl oz 4.17SC /A (also effective for powdery mildew)

Powdery Mildew

Powdery mildew is favored by warm, dry days and cool nights that lead to dew formation. Disease severity is usually highest in late summer therefore fall plantings are most susceptible. If available, plant resistant or less susceptible cultivars. At first appearance of disease, apply:

sulfur--3.0 to 10.0 lb/A

Endura--8.0 to 11.0 oz 70W/A

Priaxor--4.0 to 8.0 fl oz 4.17SC/A (also effective for Ascochyta blight)

PEPPERS

Recommended Pepper Varieties

Variety ¹	Color ²	Disease Resistance ³							
		BLSR	CMV	PVY	PHY	TEV	TM	TMV	TSWV
Bell Type									
Redstart	G/R								
Red Knight	G/R	1-3		R					
Aristotle	G/R	1-3			T		R		
Turnpike	G/R	0-5, 7-9			T				
Early Sunstation	G/Y	1-3							
Karisma	G/R	1-3	T	R				R	
Paladin	G/R				R/T		R		
Revolution	G/R	1-3, 5	T		T				
PS0994-1819	G/R	1-5			T				
Tomcat	G/R	1-5, 7-9				R		R	
Intruder	G/R	1-3			T	R		R	
Delerio	G/O							R	R
Mecate	G/Y	1-3						R	
Declaration	G/R	1-3, 5			T				T
Archimedes	G/R	0-3 ,7, 8			T		R		
Cherry Type									
Cherry Bomb (hot)	G/R							R	
Grandi	G/R								
Super Sweet Cherry	G/R							T	
Sweet Frying Type									
Aruba	LG				T				
Biscayne	LY								
Carmen	G/R								
Key West	LG/R	1-3							
Red Crest	G/R								
Yellow Crest	G/Y								