

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>).

Muskmelons and Mixed Melons

Recommended Varieties

Type	Flesh Color	Variety ^{1,2}	Days ³	Rind Description	lb ⁴	PM ⁵	FW ⁶
Muskmelon	Orange	Accolade	74	Oval, medium netting, light sutures	5	1,2	0,1,2
		Aphrodite	80	Light netting, light sutures	7	1	0,1,2
		Astound	75	Oval, fine netting, light sutures	5	1,2	0,1,2
		Athena	79	Oval, medium netting, light sutures	6	1,2	0,1,2
		Atlantis	74	Oval, medium netting, light sutures	7	1,2	0,1,2
		Avatar	72	Oval, medium netting	8	1,2	0,1,2
		Goddess	68	Oval, medium netting, light sutures	5	1,2	0,1,2
		Halona	73	Round, netted, heavy sutures	4	1,2	0,1,2
		Minerva	78	Oval, coarse netting, light sutures	8	1,2	0,1,2
		Orange Sherbet	80	Oval, medium netted, heavy sutures	7	1	0,1,2
		Rockstar	73	Oval, medium netting, light sutures	6	1,2	0,1,2
		Sarah's Choice	76	Round, netted, no sutures	3	1,2	0,1,2
		Sugar Cube	80	Mini, round, netted, no sutures	2	1,2	0,1,2
		Sugar Rush	75	Oval, netted	4	1,2	0,1,2
		Tirreno	83	Oval, medium netting, green sutures	3	1,2	0,1,2
Canary	White	Camino Europa	84	Oval, yellow, wrinkled, no net	5	1,2	0,1,2
		Camposol	80	Oval, yellow, wrinkled, no net	6	1,2	
		Halo	75	Oval, yellow, no net	5	1	0,1
		Natal	85	Oval, yellow, wrinkled, no net	5	1,2	0, 1,2
Galia	Green	Arava	77	Slight oval, fine net, no sutures	3	1,2	
		Courier	85	Slight oval, fine net, no sutures	5	1,2	0,1,2
		Diplomat	75	Slight oval, fine net, no sutures	5	1,2	
		Visa	75	Slight oval, fine net, no sutures	4	1,2	
Honeydew	Light green	Dewlightful	90	Round, white, smooth	7	1,2	
		Earli-Dew	80	Round, white, smooth	3		2
		New Moon	85	Round, white, smooth	5	1	0,2
		Summer Dew	88	Round, white, smooth	5	1,2	0,2
	White	Snow Leopard	71	Slight oval, white/green, smooth	2		1
Christmas	Light green	Lambkin	70	Oval, smooth, green/yellow rind	3		

¹Listed alphabetically within type. ²All varieties are hybrids.

³Relative days to harvest.

⁴lb=average harvest weight (pounds per melon).

⁵PM=Powdery Mildew; resistance to PM races as reported from source seed companies.

⁶FW=Fusarium Wilt; resistance to FW races as reported from source seed companies.

Melon Descriptions

Ananas	Middle Eastern Melons. Oval shaped with medium-fine netting over pale green to orange rind. Very sweet, aromatic white flesh or orange-pink flesh. Average weight 3-4 pounds.
Canary	Bright yellow rinds and an oblong shape. Inside, the pale, cream-colored flesh is juicy, and the flavor is very mild.
Casaba	Oval shape with a pointy end, wrinkled yellow skin, weighing 4-7 pounds. The pale, almost white flesh is extremely sweet.
Charentais	French melons identifiable by their smooth, gray, or gray-blue rinds with sutures and orange flesh and are small in size.
Christmas	Football shape and weighing upwards of 5 to 8 pounds. They have green mottled rinds and pale orange to light green flesh depending upon the variety. Sweet flesh.
Crenshaw	Casaba cross with a slightly more oblong shape, weighing at least 5 pounds. The slightly wrinkled green rind ripens to yellow. Inside, the flesh is pale peachy orange. It has a strong, spicy aroma.
Crosses	There are a number of crosses, e.g., muskmelon x Galia and Charentais x Muskmelon that produce excellent melons.
Galia	Israeli melons that have netted rinds similar to cantaloupes but paler in color. The sweet pale green to almost white flesh has the consistency of a honeydew with what has been described as a spicy-sweet or banana-like aroma. When ripe, they slip from the vine.
Honeydew	Smooth, white to greenish-white rinds (some may be yellow) and sweet flesh that may be green, white, or orange. Its texture is similar to a cantaloupe, but the flavor more subtle and sweet.
Muskmelon	The familiar American cantaloupes with orange flesh and netted skin. This includes deep sutured round to oval "Superstar" types, Eastern "Athena" types that are oval with slight sutures, and Western shipping types without sutures.

Melon Descriptions - continued next page

F. Muskmelons and Mixed Melons

Melon Descriptions - continued

Oriental	Small (weighing a little more than 1 pound), elongated yellow melons with white sutures, and sweet, pale peach to white flesh. Because the seeds are so small and the rind is so thin, the entire melon can be eaten.
Other	Specialty melons that do not fit into the other categories are also available including those categorized as “Gourmet”.
Persian	Bigger than cantaloupes, have a dark green rind with light brown netting. As it ripens, the rind turns to light green. Bright pink-orange flesh has a delicate flavor. Unlike most melons in the Reticulatus group, Persian melons do not slip from the vine when mature.
Tuscan	A category of muskmelon that is oblong with deep green sutures and netted straw-colored skin.

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.

Musk-melons ^{1,2}		Soil Phosphorus Level				Soil Potassium Level				
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
	N (lb/A)	P ₂ O ₅ (lb/A)				K ₂ O (lb/A)				Nutrient Timing and Method
	75-150	150	100	50	0 ³	200	150	100	0 ³	Total nutrient recommended
	25-50	150	100	50	0 ³	200	150	100	0 ³	Broadcast and disk-in or follow fertigation schedule
	25-50	0	0	0	0	0	0	0	0	Sidedress when vines begin to run or follow fertigation schedule
	25-50	0	0	0	0	0	0	0	0	Sidedress prior to first harvest or follow fertigation schedule

For plasticulture, fertilization rates are based on a standard row spacing of 6 ft. ¹Apply 1-2 lb/A of boron (B) with broadcast fertilizer; see also Table B-7. in chapter B Soil and Nutrient Management. ²Apply 25-30 lb/A of sulfur (S) for most soils. ³In VA, crop replacement values of 25 lb/A of P₂O₅ and 50 lb/A of K₂O are recommended on soils testing Very High.

Fertigation Schedule Examples

This table provides examples of fertigation schedules based on two common scenarios – sandy coastal plain soils and heavier upland soils. Modify according to specific soil tests and base fertility.

Fertigation recommendations for 100 lb N and 100 lb K ₂ O ^{1,2}								
For soils with organic matter content less than 2% or coarse texture and low to medium or deficient K								
Pre-plant (lb/A) ³			Nitrogen			Potash		
			50			100		
			N	N	N	K ₂ O	K ₂ O	K ₂ O
Stage and Description	Weeks	Days	lb/day	lb/week	lb/stage	lb/day	lb/week	lb/stage
1 Early vegetative	1-4	1-28	0.9	6.3	25.2	0.9	6.3	25.2
2 Late vegetative	5-7	29-49	1.3	9.1	27.3	1.3	9.1	27.3
3 Flowering and fruiting	8-11	50-77	1.5	10.5	42	1.5	10.5	42
4 Harvest ⁴	12-13	78-91	0.7	4.9	9.8	0.7	4.9	9.8
Fertigation recommendations for 60 lb N and 60 lb K ₂ O ^{1,2}								
For soils with organic matter content greater than 2% or fine texture and high or optimum K								
Pre-plant (lb/A) ³			Nitrogen			Potash		
			40			40		
			N	N	N	K ₂ O	K ₂ O	K ₂ O
Stage and Description	Weeks	Days	lb/day	lb/week	lb/stage	lb/day	lb/week	lb/stage
1 Early vegetative	1-4	1-28	0.5	3.5	14	0.5	3.5	14
2 Late vegetative	5-7	29-49	0.8	5.6	16.8	0.8	5.6	16.8
3 Flowering and fruiting	8-11	50-77	0.9	6.3	25.2	0.9	6.3	25.2
4 Harvest ⁴	12-13	78-91	0.4	2.8	5.6	0.4	2.8	5.6

¹Rates are based on 7,260 linear bed ft/A (6-ft bed spacing). If beds are closer or wider, fertilizer rates should be adjusted proportionally. Drive rows should not be used in acreage calculations (see section C 3. Fertigation). ²Base overall application rate on soil test recommendations. ³Applied under plastic mulch to effective bed area using modified broadcast method. ⁴For extended harvest after 10 weeks continue fertigation at this rate.

Plant Tissue Testing

Plant tissue testing can be a valuable tool to assess crop nutrient status during the growing season to aid with in-season fertility programs or to evaluate potential deficiencies or toxicities. Critical muskmelon tissue test values for

most recently matured leaves prior to fruit set: N 4-5 %, P 0.4-0.7 %, K 5.0-7.0 %, Ca 3-5%, Mg 0.35-0.45% and S 0.2%. For additional nutrients and other growth stages consult with a tissue testing laboratory or this web link at the University of Florida: <https://edis.ifas.ufl.edu/publication/ep081>.

Seed Treatment

Seed should be treated; check with your seed company and see Disease Control below.

Plant Production, Planting and Spacing

Transplants for early plantings should be grown in pots or cells with at least 2 x 2 inches per plant (50 cell trays). Later plantings can be grown in 72 cell trays. Small cells will restrict root growth and provide less protection to the newly set transplant in colder soils. One ounce of muskmelon seed contains 950-1,250 seeds. Grow at 70-75°F.

Transplant container-grown plants through plastic mulch when soil temperature has reached 60°F (16°C). Temperatures below 50°F (10°C) can stunt plant growth. Direct seeding in plastic mulch or bare ground is also successful. First planting dates vary from May 1 in southern regions to June 5 in northern areas and successive plantings can be made to harvest through early September. Early plantings should be protected from winds with row covers, or rye windbreaks. The recommended spacing for melons is 5-6 ft between rows and 2-3 ft between plants in the row for transplants (space mini melons closer than large melons). Direct seedings should be over-seeded and thinned to a similar population.

Drip/Trickle Fertilization

Before mulching, adjust soil pH to around 6.5, apply enough farm-grade fertilizer to supply 25-50% of N and K₂O requirements and thoroughly incorporate into the soil. At least 50% of N should be in the nitrate (NO₃) form. Apply all P₂O₅ pre-plant and incorporate into the soil. Apply the balance of N and K₂O through the drip irrigation system throughout the season. The first fertigation application should be within a week after field transplanting or direct seeding.

Manganese Toxicity

This disorder occurs in acid soils (pH < 5.8). Maintain soil pH at 6.5 to avoid toxicity.

Mulching

Plastic mulch laid on moist soil before field plantings conserves moisture, increases soil temperature, and increases early and total yields. Various widths of plastic mulch are available; choose a width that works with your production system and available equipment. Fumigation aids in the control of weeds and soil-borne diseases. Several fumigants can be used on muskmelon depending on what the predominant pests are. Plastic and fumigant should be applied to well-prepared soil 30 days before field planting. Fumigation alone may not provide satisfactory weed control under plastic.

Pollination (see also section A 12. Pollination).

Honey bees, squash bees, bumble bees and other wild bees are important for pollination and fruit set. Populations of pollinating insects may be adversely affected by insecticides applied to flowers or weeds in bloom. Apply insecticides only in the evening hours or wait until bloom is completed before application. See insecticide tables for relative toxicity of various pesticides for bees and follow all label application restrictions for pollinator protection.

Harvest and Post-Harvest Considerations

Muskmelons should be harvested no sooner than at half-slip and preferably at full-slip for optimum fruit quality. Canary melons and Galia melons also slip, but Honeydews and some specialty melons do not. Pick honeydew melons when the stem end becomes slightly springy, and the skin takes on a creamy yellow appearance. Harvest daily in hot weather. Cooling to remove field heat is desired. Precooling can be done with cold water, cold air, or ice. Hydrocooling is the most efficient method, but room cooling and forced air cooling are also suitable for melons. After precooling, muskmelons should be stored at 36-41°F (2-5°C) and 95% relative humidity. A full-slip melon can be kept about 15 days at this temperature. Honeydews and other non-slip melons should not be stored below 40°F (4°C), as chilling injury will result. They will retain adequate quality for 2-3 weeks at 45-50°F (7-10°C).

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.

Labeled Application Sites for Muskmelons

Herbicide (* = Restricted Use)	HRAC group number	Plastic mulch production					Bareground production		
		Soil-Applied		Postemergence			Soil-applied	POST	Post-harvest
		Under Plastic	Row Middles	Over Plastic	Row Middles	Post-Harvest			
Sandea	2	YES	YES	YES	YES		YES	YES	
Curbit	3		YES				YES		
Prowl H2O	3		YES						
Treflan	3		YES						
Prefar	8	YES	YES				YES		
Command	13		YES				YES		
Strategy	3 + 13		YES				YES		
Poast	1			YES				YES	
Select	1			YES				YES	
SelectMax	1			YES				YES	
Gramoxone*1	22				YES	YES			YES

¹ Special Local Needs Label 24(c), be sure it is registered for the specific state and for the intended use.

1. Soil-Applied

Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
2	Sandea 75DF	0.5 to 1 oz/A	halosulfuron	0.023 to 0.047 lb/A	57	12
-Labeled for use on cantaloupes, honeydew melons, and Crenshaw melons. -Plasticulture: can be applied in a band under the plastic, immediately before laying the mulch; delay seeding or transplanting for 7 days after application. Row middles: apply before or after weed emergence; apply as a shielded application to avoid contact with the crop. If weeds have emerged, use a non-ionic surfactant at 0.25% v/v or include a non-selective herbicide. -Bareground: apply broadcast after seeding but before crop emergence or no sooner than 7 days before transplanting. -Suppresses or controls yellow nutsedge and certain broadleaf weeds. -Sandea provides both residual and postemergence control of susceptible weed species. Effective postemergence control requires an adjuvant. Sandea is an ALS inhibiting herbicide and resistant weed populations are common in the region. -Do not use Group 2 herbicides repeatedly in the same field. -Do not apply Sandea to crops treated with a soil applied organophosphate insecticide, or use a foliar applied organophosphate insecticide within 21 days before or 7 days after a Sandea application. -Maximum number of applications per year is 2 and do not exceed 2 oz/A during the crop season.						
3	Curbit 3EC	1 to 3 pt/A	ethalfluralin	0.38 to 1.13 lb/A	--	24
-Plasticulture: row middles only: apply as a banded spray after crop emergence or after transplanting. Do not soil incorporate. -Bareground: apply broadcast after direct-seeding but prior to crop emergence; do not use on transplanted melons. -Controls annual grasses and certain annual broadleaf weeds, including carpetweed and pigweed sp. Use lower rate for coarse-textured soils or soils with low organic matter. Where overhead irrigation is available, activate Curbit with 0.5 inch of irrigation within 2 days after application; if no irrigation or rainfall occurs within 5 days of application, activity of Curbit can be reduced. -Available as a pre-mix herbicide Strategy. Strategy at 3 pt/A = Curbit at 26 fl oz (0.6 lb ai) and Command at 8 fl oz (0.188 lb ai) -Maximum applications per season: not specified						
3	Prowl H2O 3.8CS	2.1 pt/A	pendimethalin	1 lb/A	35	24
-Plasticulture: row middles only: apply as a banded spray before seeded crop has emerged or before transplanting. -Bareground: apply with shielded sprayer band between rows, leaving 6 inches of untreated area on both sides of the seeded or transplanted row. Apply before seeded crop emerges or before transplanting. -Where overhead irrigation is available, activate Prowl H2O with 0.5 inch of rainfall or sprinkler irrigation within 48 h of application; if no irrigation or rainfall occurs within 5 days of application, activity of Prowl H2O can be reduced -A second application at the same rate may be applied to row middles as a banded spray postemergence a minimum of 21 days after the first application, but before the vines begin to run. Do not apply over the top of the crop, or severe injury may occur. -Maximum number of Prowl H2O applications per season is 2 and do not exceed 4.2 pt/A during the crop season.						

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1. Soil-Applied - continued

3	Treflan 4EC	1 to 2 pt/A	trifluralin	0.5 to 1 lb/A	30	12
-Plasticulture: row middles only: apply as a directed spray after emergence when plants have reached the 3 to 4 true leaf stage of growth. Not labeled for bareground production. Primarily controls annual grasses with a few broadleaf weeds. -Do not use (or reduce the rate) when cold, wet soil conditions are expected, or crop injury may result. -Maximum applications per season: not specified.						
3 + 13	Strategy 2.1SC	1.5 to 6 pt/A	ethalfluralin plus clomazone	0.39 to 1.58 lb/A	45	24
-Plasticulture: row middles application. Bareground: apply broadcast just before planting or after planting but before crop emergence. -Strategy is a prepackage mixture of Curbit 3EC and Command 3ME. -Clomazone spray or vapor drift may injure susceptible crops and other vegetation, refer to Command 3ME for comments. -Do not apply prior to planting crop. Do not soil incorporate. Refer to individual products for comments. -Maximum applications per season: not specified.						
8	Prefar 4E	5 to 6 qt/A	bensulide	5 to 6 lb/A	--	12
-Plasticulture under plastic: apply in a band under the plastic, immediately before laying the mulch. Allow 7 day before making transplant holes to allow condensation to incorporate the herbicide. Plasticulture: row middles application is labeled. -Bareground: apply preemergence or pre-plant incorporated. -Preemergence applications should be followed by irrigation within 36 h (apply enough water to wet the soil at least 2 to 4 inches deep). -Pre-plant incorporated applications should be incorporated 1 to 2 inches deep (deeper than 2 inches will result in reduced weed control). -Prefar 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.						
13	Command 3ME	0.4 to 0.67 pt/A	clomazone	0.15 to 0.25 lb/A	--	12
-Plasticulture: row middles application only. -Bareground: apply broadcast just before planting or after planting but before crop emergence. Use the lower rate when used on coarse-textured soils low in organic matter, when weed pressure is light, or to minimize herbicide carryover that could affect subsequent crops. -Controls annual grasses and many broadleaf weeds including common lambsquarters, velvetleaf, spurred anoda, and jimsonweed. Carpetweed, morningglory sp., pigweed sp., and yellow nutsedge will not be controlled. Higher rates will improve control (or expand number of species controlled) such as common cocklebur, common ragweed, or jimsonweed (refer to label for specific weeds and rates). -WARNINGS: 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 adjacent to sensitive crops (see label) or vegetation, or under unfavorable wind or weather conditions. Command may limit subsequent cropping options, see the label. -Available as a pre-mix herbicide Strategy: Strategy at 3 pt/A = Command at 8 fl oz (0.188 lb ai) and Curbit at 26 fl oz (0.6 lb ai). -Maximum number of Command applications per year: 1.						

2. Postemergence

Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
1	Select 2EC	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	0.19 to 0.28 lb/A	3	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 repeat 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 32 fl oz/A for the season; do not apply more than 16 fl oz of Select Max in a single application and do not exceed 64 fl oz/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.						
2	Sandea 75DF	0.5 to 1 oz/A	halosulfuron	0.023 to 0.047 lb/A	57	12
-Labeled for use on cantaloupes, honeydew melons, and Crenshaw melons. -Plasticulture: broadcast (over the top) or directed to row middles; broadcast for bareground. -Bareground: apply Sandea after the crop has at least 3 to 5 true leaves but before first female flowers appear and no sooner than 14 days after transplanting. If weeds have emerged, use a non-ionic surfactant at 0.25% v/v (1 qt/100 gal). -Suppresses or controls yellow nutsedge and certain broadleaf; control of weeds taller than 3 inches may not be adequate. Sandea will not control common lambsquarters or eastern black nightshade if applied postemergence; for row middle application, tank mix with a non-selective herbicide to increase spectrum of control. -Sandea provides both residual and postemergence control of susceptible weed species. Sandea is an ALS inhibiting herbicide and resistant weed populations are common in the region. -Do not use Group 2 herbicides repeatedly in the same field. Do not apply Sandea to crops treated with a soil applied organophosphate insecticide, or use a foliar applied organophosphate insecticide within 21 days before or 7 days after a Sandea application. -Rainfastness is 4 h. Maximum number of Sandea applications per year is 2 and do not exceed 2 oz/A during the crop season						

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F. Muskmelons and Mixed Melons

2. Postemergence - continued

22	Gramoxone SL 2.0* Gramoxone SL 3.0*	1.95 pt/A 1.3 pt/A	paraquat	0.49 lb/A	14	24
<p>-A Supplemental Label has been approved for the use of both Gramoxone formulations for postemergence weed control in DE, MD, NJ, PA, and VA. Row middles as a shielded application.</p> <p>-Apply as a directed spray in a minimum of 20 gal/A of spray mix to control emerged weeds between the rows after crop establishment. Include a nonionic surfactant at 0.25% v/v. Use shields or hoods to prevent spray contact with the crop and low spray pressure (maximum of 30 psi) to reduce small droplets that are prone to drift. See the label for additional information and warnings.</p> <p>-Rainfastness is 30 min. A maximum of 3 applications per year 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>						

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	14	24
<p>-A Special Local Needs Label 24(c) has been approved for Gramoxone SL 2.0 in VA (expires 12/31/2022) and a Supplemental Label in DE for the use of both Gramoxone formulations for postharvest application to desiccate the crop..</p> <p>-Apply after the last harvest for bareground or plasticulture. Always include an adjuvant.</p> <p>-Spray coverage is essential for optimum effectiveness. See the label for additional information and warnings.</p> <p>-Rainfastness 30 min. A maximum of 2 applications for crop desiccation are allowed.</p> <p>-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
2	League	imazosulfuron
3	Dacthal	DCPA
14	Aim	carfentrazone
14	Varsity, others	flumioxazin

Insect Control

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

Seed and At-Plant Treatments for Seedcorn Maggot

Farmore DI-400 as a commercially applied seed treatment which contains thiamethoxam (Group 4A).

Athena* (bifenthrin + avermectin B1, Group 3A + 6) at planting at 8.5 to 17 fl oz/A.

Verimark (cyantraniprole, Group 28) applied no earlier than 72 hours prior to planting, at 10-13.5 oz/A using in-furrow spray, transplant tray drench, transplant water treatment, hill drench, or surface band.

Note: The use of neonicotinoid insecticides (Group 4A) at planting may help reduce seedcorn maggot populations. See also Maggots in section E 3.1. Soil Pests - Detection and Control.

Aphids Note: Aphids transmit multiple viruses.

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV*	1.5 to 3.0 pt/A	methomyl - melon aphid only	1-3	48	H
1B	Dimethoate 400	1.0 pt/A	dimethoate	3	48	H
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4D	Sivanto Prime or 200SL	21.0 to 28.0 fl oz/A	flupyradifurone - soil/drip	21	4	M
9B	Fulfill 50WDG	2.75 oz/A	pymetrozine	0	12	L
9B	PQZ	2.4 to 3.2 fl oz/A	pyrfluquinazon	1	12	L

Aphids - continued next page

Aphids - continued

9D	Sefina	3.0 fl oz/A	afidopyropen	0	12	L
21A	Torac	17.0 to 21.0 fl oz/A	tolfenpyrad	1	12	H
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	Soil, at planting: 10 to 13.5 fl oz/A Drip chemigation: 10 fl oz/A	cyantraniliprole	1	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28 + 6	Minecto Pro*	10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
29	Beleaf 50SG	Foliar: 2.0 to 2.8 oz/A Drip: 2.8 to 4.28 oz/A	flonicamid	0	12	L

Armyworms and Cabbage Loopers

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV*	1.5 to 3.0 pt/A	methomyl	1-3	48	H
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	4.0 to 8.0 fl oz/A	spinosad	3	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	3	4	M
6	Proclaim 5SG*	3.0 to 4.8 oz/A	emamectin benzoate	7	12	H
11A	Dipel DF, others (OMRI)	0.5 to 2.0 lb/A	<i>Bacillus thuringiensis kurstaki</i>	0	4	N
11A	XenTari (OMRI) (armyworms)	0.5 to 2.0 lb/A	<i>Bacillus thuringiensis aizawai</i>	0	4	N
11A	XenTari (OMRI) (cabbage loopers)	0.5 to 1.0 lb/A	<i>Bacillus thuringiensis aizawai</i>	0	4	N
18	Intrepid 2F	4.0 to 10.0 fl oz/A	methoxyfenozide	3	4	L
22	Avaunt 30WDG, Avaunt eVo	2.5 to 6.0 oz/A	indoxacarb	3	12	H
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - soil and foliar	1	4	L
28	Exirel (armyworms)	7.0 to 13.5 fl oz/A	cyantraniliprole	1	12	H
28	Exirel (cabbage looper)	10.0 to 17.0 fl oz/A	cyantraniliprole	1	12	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantraniliprole	1	4	H
28+4A	Voliam Flexi (cabbage looper only)	4.0 to 7.0 oz/A	thiamethoxam + chlorantraniliprole	1	12	H
28 + 6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H

Cucumber Beetles

Cucumber beetles transmit bacterial wilt, and most varieties of muskmelons are highly susceptible to this disease. Adult beetles can also cause direct feeding injury to young plants. Control adults before they feed extensively on the cotyledons and first true leaves. If foliar insecticides are used, begin spraying shortly after plant emergence and repeat applications at weekly intervals if new beetles continue to invade fields. Treatments may be required until vines begin to run. Management of adult cucumber beetles early in the season may help reduce damage to rinds later in the season. Seeds pretreated with a neonicotinoid such as Farmore DI-400 should provide up to 14 days of control of cucumber beetle. Otherwise, apply one of the following formulations:

Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV*	1.5 to 3.0 pt/A	methomyl	1-3	48	H
1A	Sevin XLR Plus	1.0 qt/A	carbaryl	3	12	H
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
28	Exirel	20.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	Soil, at planting: 13.5 fl oz/A Drip chemigation: 10 fl oz/A	cyantraniliprole	1	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H

Cutworms See also section E 3.1. Soil Pests - Detection and Control.

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV* (variegated cutworm)	1.5 pt/A	methomyl	1	48	H
1A	Lannate LV* (granulate cutworm)	1.5 to 3.0 pt/A	methomyl	1-3	48	H
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					

F. Muskmelons and Mixed Melons

Leafhoppers High numbers cause leaf yellowing (chlorosis) known as hopper burn, and yield loss.

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Dimethoate 400	1.0 pt/A	dimethoate	3	48	H
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4D	Sivanto Prime or 200SL	21.0 to 28.0 fl oz/A	flupyradifurone - soil/drip	21	4	M
9B	PQZ	3.2 fl oz/A	pyrifluquinazon	1	12	L
21A	Torac	14.0 to 21.0 fl oz/A	tolfenpyrad	1	12	H

Leafminers

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Dimethoate 400	1.0 pt/A	dimethoate	3	48	H
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	6.0 to 8.0 fl oz/A	spinosad	3	4	M
5	Radiant SC	6.0 to 10.0 fl oz/A	spinetoram	3	4	M
6	Agri-Mek SC*	1.75 to 3.5 fl oz/A	abamectin	7	12	H
17	Trigard 75WSP	2.66 oz/A	cyromazine	0	12	H
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - soil	1	4	L
28	Coragen 1.67SC	5.0 to 7.5 fl oz/A	chlorantraniliprole - foliar	1	4	L
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantraniliprole	1	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

Mites

Infestations generally begin around field margins and grassy areas. **DO NOT** mow or maintain these areas after midsummer since this forces mites into the crop. Localized infestations can be spot treated. Begin treatment when 10-15% of the crown leaves are infested early in the season.

Apply one of the following formulations. Note: Continuous use of carbaryl or pyrethroids may result in mite outbreaks.						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
6	Agri-Mek SC*	1.75 to 3.5 fl oz/A	abamectin	7	12	H
6 + 3A	Athena*	13.5 to 17 fl oz/A	avermectin B1 + bifenthrin	7	12	H
10B	Zeal Miticide	2.0 to 3.0 oz/A	etoxazole	7	12	L
20B	Kanemite 15SC	31.0 fl oz/A	acequinocyl	1	12	L
21A	Magister SC	24.0 to 36.0 fl oz/A	fenazaquin	3	12	H
21A	Portal	2.0 pt/A	fenpyroximate	3	12	L
23	Oberon 2SC	7.0 to 8.5 fl oz/A	spiromesifen	7	12	M
28 + 6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
20D	Acramite 50WS	0.75 to 1.0 lb/A	bifenazate	3	12	M

Melonworms and Pickleworms

Apply one of the following formulations. If foliar materials are used, make one treatment prior to fruit set, and then treat weekly. If soil or drip applications are used, check the label for additional instructions.						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Lannate LV*	1.5 to 3.0 pt/A	methomyl	1-3	48	H
1A	Sevin XLR Plus	0.5 to 1.0 qt/A	carbaryl	3	12	H
3A	Pyrethroid insecticides registered for use on musk melons: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	4.0 to 8.0 fl oz/A	spinosad	3	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	3	4	M
6	Proclaim 5SG*	3.0 to 4.8 oz/A	emamectin benzoate	7	12	H
18	Intrepid 2F	4.0 to 10.0 fl oz/A	methoxyfenozide	3	4	L
22	Avaunt 30WDG, Avaunt eVo	2.5 to 6.0 oz/A	indoxacarb	3	12	H

Melonworms and Pickleworms – continued next page

Melonworms and Pickleworms – continued

28	Coragen 1.67SC	2.0 to 7.5 fl oz/A	chlorantraniliprole - soil	1	4	L
28	Coragen 1.67SC	2.0 to 3.5 fl oz/A	chlorantraniliprole - foliar	1	4	L
28	Exirel	7.0 to 13.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	5.0 to 10.0 fl oz/A	cyantraniliprole	1	4	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
28+4A	Durivo	10.0 to 13.0 fl oz/A	thiamethoxam + chlorantraniliprole	30	12	H
28+4A	Voliam Flexi	4.0 to 7.0 oz/A	thiamethoxam + chlorantraniliprole	1	12	H
28+6	Minecto Pro*	5.5 to 10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H

Rindworms

For Lepidopteran Rindworms, use one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
3A	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	4.0 to 8.0 fl oz/A	spinosad	3	4	M
5	Radiant SC	5.0 to 10.0 fl oz/A	spinetoram	3	4	M
6	Proclaim 5SG*	3.0 to 4.8 oz/A	emamectin benzoate	7	12	H
18	Intrepid 2F	4.0 to 10.0 fl oz/A	methoxyfenozide	3	4	L

Thrips

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1B	Dimethoate 400	1.0 pt/A	dimethoate	3	48	H
3A ¹	Pyrethroid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4A ²	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
5	Entrust SC (OMRI)	6.0 to 8.0 fl oz/A	spinosad	3	4	M
5	Radiant SC	6.0 to 10.0 fl oz/A	spinetoram	3	4	M
21A	Torac	21.0 fl oz/A	tolfenpyrad	1	12	H
28	Harvanta 50SL	10.9 to 16.4 fl oz/A	cyclaniliprole	1	4	H
29	Beleaf 50SG	Foliar: 2.0 to 2.8 oz/A Drip: 2.8 to 4.28 oz/A	flonicamid	0	12	L

¹Resistance concerns with western flower thrips ²Resistance concerns with tobacco thrips**Whiteflies**

Apply one of the following formulations:						
Group	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
4A	Neonicotinoid insecticides registered for use on Musk and Mixed Melons: see table at the end of Insect Control.					
4D	Sivanto Prime or 200SL	21.0 to 28.0 fl oz/A	flupyradifurone - soil/drip	21	4	M
7C	Knack	8.0 to 10.0 fl oz/A	pyriproxyfen	7	12	L
9B	Fulfill 50WDG	2.75 oz/A	pymetrozine	0	12	L
9B	PQZ	2.4 to 3.2 fl oz/A	pyrifluquinazon	1	12	L
9D	Sefina	14.0 fl oz/A	afidopyropen	0	12	L
21A	Portal	2.0 pt/A	fenpyroximate	3	12	L
23	Oberon 2SC	7.0 to 8.5 fl oz/A	spiromesifen	7	12	M
28	Exirel	13.5 to 20.5 fl oz/A	cyantraniliprole	1	12	H
28	Verimark	6.75 to 13.5 fl oz/A	cyantraniliprole	1	4	H
28 + 6	Minecto Pro*	10.0 fl oz/A	cyantraniliprole + abamectin	7	12	H
29	Beleaf 50SG	Foliar: 2.0 to 2.8 oz/A Drip: 2.8 to 4.28 oz/A	flonicamid	0	12	L

Group 3A Pyrethroid Insecticides Registered for Use on Musk and Mixed Melons

Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):					
Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Asana XL*	5.8 to 9.6 fl oz/A	esfenvalerate	3	12	H

Group 3A Pyrethroid Insecticides Registered for Use on Musk and Mixed Melons - continued next page

F. Muskmelons and Mixed Melons

Group 3A Pyrethroid Insecticides Registered for Use on Musk and Mixed Melons - continued

Baythroid XL*	0.8 to 2.8 fl oz/A	beta-cyfluthrin	0	12	H
Brigade 2EC*, others	2.6 to 6.4 fl oz/A	bifenthrin	3	12	H
Danitol 2.4EC*	10.67 to 16.0 fl oz/A	fenpropathrin	7	24	H
Declare*	1.02 to 1.54 fl oz/A	gamma-cyhalothrin	1	24	H
Hero EW*	4.0 to 10.3 fl oz/A	zeta-cypermethrin + bifenthrin	3	12	H
Lambda-Cy 1EC*, others	2.56 to 3.84 fl oz/A	lambda-cyhalothrin	1	24	H
Mustang Maxx*	1.28 to 4.0 fl oz/A	zeta-cypermethrin	1	12	H
Permethrin 3.2EC*, others	4.0 to 8.0 fl oz/A	permethrin	0	12	H
Tombstone*, others	0.8 to 2.8 fl oz/A	cyfluthrin	0	12	H
Warrior II*	1.28 to 1.92 fl oz/A	lambda-cyhalothrin	1	24	H
Combo products containing a pyrethroid					
Athena*	7.0 to 17.0 fl oz/A	bifenthrin + avermectin B1 (Group 6)	7	12	H
Besiege*	6.0 to 9.0 fl oz/A	lambda-cyhalothrin + chlorantraniliprole (Group 28)	1	24	H
Endigo ZC*	4.0 to 4.5 fl oz/A	lambda-cyhalothrin + thiamethoxam (Group 4A)	1	24	H
Gladiator*	19.0 fl oz/A	zeta-cypermethrin + abamectin (Group 6)	7	12	H
Savoy EC*	6.0 to 12.9 fl oz/A	bifenthrin + acetamiprid (Group 4A)	7	12	H

Group 4A Neonicotinoid Insecticides Registered for Use on Musk and Mixed Melons

Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):

Product Name (*Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Admire Pro	7.0 to 10.5 fl oz/A	imidacloprid - soil	21	12	H
Assail 30SG	2.5 to 5.3 oz/A	acetamiprid	0	12	M
Actara 25WDG	1.5 to 5.5 oz/A	thiamethoxam	0	12	H
Platinum 75SG	1.66 to 3.67 oz/A	thiamethoxam	30	12	H
Belay 2.13SC	9.0 to 12.0 fl oz/A	clothianidin - soil/drip	21	12	H
Belay 2.13SC	3.0 to 4.0 fl oz/A	clothianidin - foliar (note: PHI: do not make application after 4 th true leaf has unfolded)	see note	12	H
Scorpion 35SL	9.0 to 10.5 fl oz/A	dinotefuran - soil/drip	21	12	H
Scorpion 35SL	2.0 to 7.0 fl oz/A	dinotefuran - foliar	1	12	H
Venom 70SG	5.0 to 7.5 oz/A	dinotefuran - soil/drip	21	12	H
Venom 70SG	1.0 to 4.0 oz/A	dinotefuran - foliar	1	12	H
Combo products containing a neonicotinoid					
Durivo	10.0 to 13.0 fl oz/A	thiamethoxam + chlorantraniliprole (Group 28)	30	12	H
Endigo ZC*	4.0 to 4.5 fl oz/A	thiamethoxam + lambda-cyhalothrin (Group 3A)	1	24	H
Savoy EC*	6 to 12.9 fl oz/A	acetamiprid + bifenthrin (Group 3A)	7	12	H
Voliam Flexi	4.0 to 7.0 oz/A	thiamethoxam + chlorantraniliprole (Group 28)	1	12	H

Disease Control

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

Nematode Control

Use fumigants listed in section E 1.5. Soil Fumigation, or one of the nematicides listed below.

Code	Product Name (*Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
1A	Vydate L*	1.0 to 2.0 gal/A Incorporate into top 2-4 inches of soil, OR 2.0 to 4.0 pt/A apply 2 w after planting and repeat 2-3 w later.	oxamyl	1	48	H
7	Velum Prime 4.16SC	6.5 to 6.84 fl oz/A	fluopyram	0	12	--
--	Nimitz 4EC	3.5 to 5.0 pt/A Incorporate or drip-apply 7 d before planting.	fluensulfone	n/a	12	N

Seed Treatment

If seed has not been treated with a fungicide and insecticide, use a mixture of Thiram 480DP (4.5 fl oz/100 lb seed) and an approved commercially available insecticide.

Damping-off caused by Phytophthora, Pythium, and Rhizoctonia

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply one of the following at-planting (see label for application timing, methods, and restrictions):						
Phytophthora and Pythium Root Rot						
4	Ridomil Gold 4SL ¹	1.0 to 2.0 pt/A	mefenoxam	5	48	N
4	Ultra Flourish 2E ¹	2.0 to 4.0 pt/A	mefenoxam	5	48	N
4	MetaStar 2E AG ¹	4.0 to 8.0 pt/A	metalaxyl	AP	48	N
Phytophthora, Pythium, and Rhizoctonia Root Rot						
4 + 11	Uniform 3.66SE	0.34 fl oz/1000 ft row. Avoid direct seed contact, which may cause delayed emergence.	mefenoxam + azoxystrobin	AP	0	N
Rhizoctonia root rot						
11	azoxystrobin 2.08F	0.40 to 0.80 fl oz/1000 ft row	azoxystrobin	1	4	N
Pythium root rot only						
28	Previcur Flex 6F	1.2 pt/A in transplant water, drip irrigation, or direct spray at base of plant and soil	propamocarb hydrochloride	2	12	N

¹To determine the amount of Ridomil Gold, Ultra Flourish or MetaStar needed per acre, use the following calibration formula for changing from broadcast to band application: [Band width (ft) / row spacing (ft)] x broadcast rate (lb/A) = Amount needed lb/A.

Bacterial and Fungal Diseases

Alternaria Leaf Blight

Rotate muskmelons with unrelated crops. Begin sprays when vines begin to run, or earlier if symptoms are detected.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Begin sprays when vines begin to run. ALTERNATE one of the following:						
M03	mancozeb 75DF ¹	2.0 to 3.0 lb/A ¹	mancozeb	5	24	N
M05	chlorothalonil 6F	2.0 to 3.0 pt/A	chlorothalonil	0	12	N
WITH A TANK MIX of one of the following fungicides PLUS chlorothalonil 6F 2.0 to 3.0 pt/A every 14 days. Materials with different modes of action (FRAC codes) should always be alternated.						
7 + 11	Pristine 38WG ²	12.5 to 18.5 oz/A	boscalid + pyraclostrobin	0	12	--
3 + 9	Inspire Super 2.82EW	16.0 to 20.0 fl oz/A	difenoconazole + cyprodinil	7	12	--
3 + 11	Quadris Top 1.67SC ³	12.0 to 14.0 fl oz/A	difenoconazole + azoxystrobin	1	12	--
7 + 11	Luna Sensation 4.25SC ⁴	7.6 fl oz/A	fluopyram + trifloxystrobin	0	12	--
3 + 7	Aprovia Top 1.62EC	10.5 to 13.5 fl oz/A	difenoconazole + benzovindiflupyr	0	12	--
7 + 11	Merivon 2.09SC ²	4.0 to 5.5 fl oz/A	fluxapyroxad + pyraclostrobin	0	12	N
3 + 11	Topguard EQ 4.29SC ^{3,5}	5.0 to 8.0 fl oz/A	flutriafol + azoxystrobin	1	12	--
11	azoxystrobin 2.08F ^{3,5}	11.0 to 15.5 fl oz/A	azoxystrobin	1	24	N
11	Cabrio 20EG ²	12.0 to 16.0 oz/A	pyraclostrobin	0	12	N
11	Reason 500SC	5.5 fl oz/A	fenamidone	14	12	--

¹The varieties 'Harvest Queen', 'Gold Star', 'Super Star', 'Sweet and Early', and 'Saticoy' are sensitive to mancozeb.

²Tank mixes of additives, adjuvants, and/or other products may result in crop injury.

³Do not apply near apples.

⁴A mild yellowing on leaf margins is sometimes seen following application of Luna Sensation in cucurbits.

⁵Do not tank mix with crop oil concentrates, methylated spray oil, or silicon adjuvants. Do not tank mix with Malathion, Thiodan, Lannate, MPede, or Botran.

Angular Leaf Spot and Bacterial Leaf Spot

At first sign of disease, apply the labeled rates of fixed copper plus mancozeb. Some copper-based products are OMRI listed and can be used in organic systems to help suppress Angular leaf spot and other fungal diseases. Repeat every 7 d. Avoid overhead irrigation when symptoms are present and working in field while foliage is wet.

Bacterial Wilt

Controlling striped and spotted cucumber beetles is essential for preventing bacterial wilt. See preceding "Cucumber Beetle" section under Insect Control for specific recommendations. Insecticide applications made at seeding may not prevent beetle damage all season; additional foliar insecticide applications may be necessary.

Downy Mildew

Scout fields for disease incidence beginning in early summer. Strains of Downy Mildew that infect one cucurbit crop may not affect other cucurbit crops. Unnecessary fungicide applications can be avoided by not spraying until disease is predicted in the region on melon or cucumber (check the Cucurbit Downy Mildew Forecasting website at: <https://cdm.ipmPIPE.org>). **Preventative applications are much more effective than applications made after detection.** Materials with different modes of action (FRAC codes) should always be alternated. Tank mix with protectant if not included in the product.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
The following are the most effective products. Sprays should be applied on a 7-day schedule. Under severe disease conditions spray interval may be reduced IF the label allows.						
49 + 40	Orondis Ultra 2.33SC	5.5 to 8.0 fl oz/A	oxathiapiprolin + mandipropamid	0	4	--
21	Ranman 400SC	2.10 to 2.75 fl oz/A (do not apply with copper; see label for details) ¹	cyazofamid	0	12	L
Other materials for use in rotation as tank mix partners with a protectant:						
M03+22	Gavel 75DF ²	1.5 to 2.0 lb/A contains protectant	mancozeb + zoxamide	5	48	--
M05+22	Zing! 4.9SC	36 fl oz/A contains protectant	chlorothalonil + zoxamide	0	12	N
M05+27	Ariston 42SC	1.9 to 3.0 pt/A contains protectant	chlorothalonil + cymoxanil	3	12	--
11 + 27	Tanos 50DF	8.0 oz/A	famoxadone + cymoxanil	3	12	--
27	Curzate 60DF	3.2 to 5.0 oz/A	cymoxanil	3	12	N
28	Previcur Flex 6F	1.2 pt/A	propamocarb hydrochloride	2	12	N
40	Forum 4.17SC	6.0 fl oz/A	dimethomorph	0	12	N
40 + 45	Zapro 525SC	14.0 fl oz/A	dimethomorph + ametocetradin	0	12	--
43	Presidio 4SC	4.0 fl oz/A	fluopicolide	2	12	L
49+M05	Orondis Opti	1.75 to 2.5 pt/A	oxathiapiprolin + chlorothalonil	0	12	--
29	Omega 500F	12.0 to 24.0 fl oz/A	fluazinam	30	12	N
22	Elumin 4SC	8.0 fl oz/A	ethaboxam	2	12	--

¹Ranman should be tank mixed with an organosilicone surfactant when disease is severe, or a non-ionic surfactant or blend of organosilicone and non-ionic surfactant disease is moderate or light.

²The varieties 'Harvest Queen', 'Gold Star', 'Super Star', 'Sweet and Early', and 'Saticoy' are sensitive to mancozeb.

Fusarium Wilt

Rotate to allow 5 years between muskmelon plantings in any given location. Use resistant cultivars, when possible, see table Recommended Varieties. A FIFRA 2(ee) label for chemigation of Rhyne (FRAC code 3) to suppress Fusarium Wilt has been approved in DE, MD, PA, NJ, VA, and WV. See label for details.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Application of Proline through drip irrigation or as a post-plant drench followed by two foliar applications may reduce Fusarium Wilt early season:						
3	Proline 480SC ¹	5.7 fl oz/A	prothioconazole	7	12	--

¹Note: only one soil application of Proline is allowed per season.

Gummy Stem Blight

In the mid-Atlantic regions, fungicide that only contain FRAC code 11 components are not recommended. Pristine, which contains both FRAC code 11 and 7 components should always be tank-mixed with a protectant fungicide to reduce the possibility of resistance development. **When tank-mixing use at least the minimum labeled rate of each fungicide. Alternate fungicides with different modes of action. Do not apply FRAC code 11 fungicides more than 4 times total per season.** Begin sprays when vines begin to run.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Under LOW DISEASE PRESSURE, apply the following every 7 days:						
M05	chlorothalonil 6F	2.0 to 3.0 pt/A	chlorothalonil	0	12	N
Under HIGH DISEASE PRESSURE, ALTERNATE:						
M05	chlorothalonil 6F	2.0 to 3.0 pt/A ¹	chlorothalonil	0	12	N
WITH A TANK-MIX containing a protectant fungicide (such as chlorothalonil) PLUS one of the following:						
3	Proline 480SC	5.7 fl oz/A	prothioconazole	7	12	--
3	tebuconazole 3.6F ²	8.0 fl oz/A	tebuconazole	7	12	N

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Gummy Stem Blight - continued

3	Rhyme 2.08SC	5.0 to 7.0 fl oz/A	flutriafol	0	12	--
3 + 9	Inspire Super 2.82EW	16.0 to 20.0 fl oz/A	difenoconazole + cyprodinil	7	12	--
3 + 7	Aprovia Top 1.62EC	10.5 to 13.5 fl oz/A	difenoconazole + benzovindiflupyr	0	12	--
7 + 11	Merivon 2.09SC ³	5.5 fl oz/A	fluxapyroxad + pyraclostrobin	0	12	N
7 + 11	Pristine 38WG ³	12.5 to 18.5 oz/A	boscalid + pyraclostrobin	0	12	--
9 + 12	Switch 62.5WG	11.0 to 14.0 oz/A	cyprodinil + fludioxonil	1	12	L
7 + 12	Miravis Prime	9.2 to 11.4 fl oz/A	pydiflumetofen + fludioxonil	1	12	--

¹Use low rate early in season.²Note: reduced sensitivity of the pathogen to tebuconazole has been found in the Southern U.S.³Tank mixes of additives, adjuvants, and/or other products may result in crop injury.**Phytophthora Crown and Fruit Rot**

Multiple practices should be used to minimize the occurrence of this disease. Grow muskmelons on raised beds and drain fields adequately so that water will not accumulate around the base of the plants. Rotate away from susceptible crops (cucurbits, peppers, lima beans and beans, eggplants, and tomatoes) for as long as possible. Apply pre-plant fumigants to suppress disease. Apply fungicides when conditions are favorable for disease development. Fruit are susceptible at all growth stages and must be protected season-long.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply one of the following fungicides and tank mix with fixed copper at labeled rates when conditions favor disease development (for suppression only). Materials with different modes of action (FRAC codes) should always be alternated to reduce the chances for fungicide resistance development:						
49 + 40	Orondis Ultra 2.33SC	5.5 to 8.0 fl oz/A	oxathiapiprolin + mandipropamid	0	4	--
40	Revus 2.08F	8.0 fl oz/A	mandipropamid	0	4	--
40 + 45	Zapro 525SC	14.0 fl oz/A	dimethomorph + acetochlorin	0	12	--
43	Presidio 4SC ¹	4.0 fl oz/A	fluopicolide	2	12	L
M03+22	Gavel 75DF ²	1.5 to 2.0 lb/A	mancozeb + zoxamide	5	48	--
11 + 27	Tanos 50DF	8.0 to 10.0 oz/A	famoxadone + cymoxanil	3	12	--
21	Ranman 400SC	2.75 fl oz/A (Do not apply with copper, see label details) ³	cyazofamid	0	12	L
40	Forum 4.17SC	6.0 fl oz/A	dimethomorph	0	12	N
49+M05	Orondis Opti	1.75 to 2.5 pt/A	oxathiapiprolin + chlorothalonil	0	12	--
22	Elumin 4SC	8.0 fl oz/A	ethaboxam	2	12	--
M05+22	Zing! 4.9SC	36.0 fl oz/A	chlorothalonil + zoxamide	0	12	N

¹Presidio may also be applied through the drip irrigation (see supplemental label).²The varieties 'Harvest Queen', 'Gold Star', 'Super Star', 'Sweet and Early', and 'Saticoy' are sensitive to mancozeb.³Ranman should be tank mixed with an organosilicone surfactant when disease is severe, or a non-ionic surfactant or blend of organosilicone and non-ionic surfactant disease is moderate or light.**Powdery Mildew**

Excellent host resistance is available (see table Recommended Varieties). The fungus that causes cucurbit Powdery Mildew has developed resistance to high-risk fungicides. In the Eastern US, resistance to strobilurin (FRAC code 11), SDHI (FRAC code 7), and DMI (FRAC code 3) fungicides has been reported. Proper fungicide resistance management should be followed to help delay the development of resistance and minimize control failures. Materials with different FRAC codes should always be alternated. Powdery Mildew generally occurs from mid-July until the end of the season. Scout fields for the presence of Powdery Mildew. If one lesion is found on the underside of 45 old leaves per acre, begin the following fungicide program:

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
TANK MIX one of these products with a protectant such as chlorothalonil 6F 2.0 to 3.0 pt/A:						
50	Vivando 2.5SC ¹	15.4 fl oz/A	metrafenone	0	12	--
13	Quintec 2.08SC	4.0 to 6.0 fl oz/A	quinoxifen	3	12	--
3 + 7	Luna Experience 3.34SC ²	6.0 to 17.0 fl oz/A	tebuconazole + fluopyram	7	12	--
7 + 11	Luna Sensation 4.25SC ²	4.0 to 7.6 fl oz/A	fluopyram + trifloxystrobin	0	12	--
AND ALTERNATE with a TANK MIX of one of the following and a protectant such as chlorothalonil 6F 2.0 to 3.0 pt/A:						
3	Proline 480SC	5.7 fl oz/A	prothioconazole	7	12	--
3	Procur 480SC	4.0 to 8.0 fl oz/A	triflumizole	0	12	N

Powdery Mildew - continued next page

F. Muskmelons and Mixed Melons

Powdery Mildew - continued

3	Rally 40WSP	2.5 to 5.0 oz/A	myclobutanil	0	24	N
3	tebuconazole 3.6F	4.0 to 6.0 fl oz/A	tebuconazole	7	12	N
3 + 7	Aprovia Top 1.62EC	10.5 to 13.5 fl oz/A	difenoconazole + benzovindiflupyr	0	12	--
3	Rhyme 2.08SC	5.0 to 7.0 fl oz/A	flutriafol	0	12	--
7 + 11	Pristine 38WG ³	12.5 to 18.5 oz/A	boscalid + pyraclostrobin	0	12	--
3 + 9	Inspire Super 2.82EW	16.0 to 20.0 fl oz/A	difenoconazole + cyprodinil	7	12	--
P05	Regalia (OMRI)	4.0 qt/A	Extract of <i>Reynoutria sachalinensis</i>	0	4	--
39	Magister 1.6SC ⁴	24.0 to 36.0 fl oz/A	fenazaquin	3	12	H
7 + 12	Miravis Prime	9.2 to 11.4 fl oz/A	pydiflumetofen + fludioxonil	1	12	--
U13	Gatten 5EC	6.0 to 8.0 fl oz/A	flutianil	0	12	--
U06	Torino 0.85SC	3.4 fl oz/A	cyflufenamid	0	4	--

¹Do not mix Vivando with horticultural oils.

²A mild yellowing on leaf margins is sometimes seen following application of Luna Experience and Luna Sensation in cucurbits.

³Tank mixes of additives, adjuvants, and/or other products may result in crop injury.

⁴Do not make more than one application per year of Magister.

Scab

The fungus that causes Scab typically occurs during periods of cool, wet weather when temperatures are below normal. Rotate away from fields with a history of Scab for at least 2 years.

Code	Product Name (* = Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Begin sprays as true leaves form and repeat every 5-7 days:						
M05	chlorothalonil 6F	2.0 to 3.0 pt/A	chlorothalonil	0	12	N

Viruses

The most prevalent virus in the mid-Atlantic region is **WMV**, followed by **PRSV**, **ZYMV** and **CMV**. Plant fields as far away from existing cucurbit plantings as possible to help reduce the chances of aphid transmission of viruses from existing fields to new fields.

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.