

Muskmelon and Watermelon

Culture

Muskmelons and watermelons are produced in Ohio primarily for local consumption. Both products face competition from southern states.

Melons are warm-season crops that achieve prime quality when grown under warm, sunny conditions. Cool, cloudy weather results in melons with inferior quality. Melons prefer sandy and sandy loam soils. Production on plastic mulch and light soils produces an early crop that commands a premium price.

Varieties

Muskmelons

Sweet 'n' Early (F1) (PMR) (smaller size)

Earlisweet (F1) (F): 1 week earlier and 2/3 size of Burpee hybrid; high quality.

Burpee Hybrid (F1)

Gold Star (F1)

Superstar (F1) (F): large, medium quality.

Saticoy (F1) (F) (PMR): high quality, poor netting.

Athena (F) (F)

Pulsar

Aphrodite

HMX 2607

Eclipse (F)

Quasar (F)

Honeydew

Limelight (trial)

Watermelon

Diploid

Mardi Gras

Carnival

Jade Star

Sangria

Triploid

Vanessa

Solitaire

Summer Sweet 5544

Treasure Chest (yellow)

Millionaire

Seedless

Imagination

Super Seedless

SW1

Palomar

Sweet Delight

Gypsy

Yellow Baby (F1), good pollinator for seedless melons.

Seedless Hybrid 313 (F1)(A): 1 row of pollinator to 2 rows of the variety; low germination.

Crimson Sweet (F)(A)

Charleston Grey (F)(A)

Seedless Triple Sweet (trial)

PMR: Powdery mildew resistance.

F: Fusarium resistance.

A: Anthracnose tolerance.

Most melons are started as transplants. Seed 3 weeks ahead of intended planting date in Jiffy 7's, 2.25-by-2.25-square-inch peat pots, or 3- to 4-inch round peat pots. Plant seeds 0.5 inch deep in soil mix or artificial mix. Keep moist and at a constant temperature of 80-85°F for 2 days.

After germination, grow plants at 75°F days, and 65°F, nights. Thin to two plants per pot. Harden before transplanting by reducing temperatures 5-10°F for 2-3 days before transplanting. Protect transplants from cold winds.

Lime and Fertilizer

Maintain a soil pH of 6.0-6.8.

- **For melons under plastic mulch and fertigation**

Apply per acre under plastic mulch 50 lb N (with fertigation), 100-150 lb N (no fertigation), 50-100 lb P₂O₅, and 100-150 lb K₂O. Phosphorus and potassium are best determined by soil test.

Apply 50%-75% of the fertilizer preplant broadcast and work into the soil prior to laying the mulch. Apply the remainder in a band 2 inches deep and 2 inches to the side of the plant row, also before laying the mulch.

- **For melons on bare soil**

Use no fertigation rates (100-150 lb N/A). Apply 50%-75% preplant broadcast and the remainder sidedressed at vine tips.

Avoid using anhydrous ammonia or solutions containing free ammonia.

Magnesium

Melons have a high requirement for magnesium. If soils are acid and require lime, apply dolomitic or high magnesium lime.

Spacing and planting

Muskmelons

Rows: 6-8 ft apart.

In-row: 2.5-3.0 ft apart between hills of 2 plants.

Seed required: 0.25-0.50 lb/A for transplants; 2-3 lb/A for direct seeding.

Watermelons

Rows: 6-9 ft apart.

In-row: 3-4 ft between hills of 2 plants.

Transplants with one or two true leaves are best for setting into the field. Soak peat pots thoroughly before planting and completely bury the pots to prevent wicking and drying of the pots and roots.

Pollination

Melons require bees for pollination and fruit set. If wild bees are not satisfactory, provide one hive/A of melons.

Harvest and Handling

Muskmelons should be picked at full slip, which may be every other day during high temperatures. After harvest, for best flavor, hold for 1-3 days at 70°F.

For longer storage, muskmelons should be cooled promptly and held at 50-55°F. Temperatures below 50°F cause chilling injury and prevent full flavor development.

Watermelons are ripe and ready for harvest when, on some varieties, the tendril next to the stem of the fruit dries. A better indicator of ripeness is when the belly color turns from white or light green to a buttery yellow color. Experienced pickers can determine melon ripeness by “thumping” the melons. Unripe melons have a hard, ringing sound that changes to a dull, hollow sound as the melons ripen.

Watermelons can be held up to 2 weeks at 40-50°F. Colder temperatures cause chilling injury, indicated by pitting of the rind followed by decay.

Disease Control

Damping off

Buy commercial fungicide-treated seed, if available. If Pythium has been a problem, apply **Ridomil Gold EC** (46 EC) at 1-2 pt/A preplant. (See label directions.)

Alternaria Leaf Spot and Anthracnose

Spray at 7-day intervals with one of the following:

Bravo Ultrex 1.8-2.7 lb/A (0 days-PHI).

Bravo Weather Stik 1.5-2 pt/A (0 days-PHI).

Equus DF 1.4-1.8 lb/A (0 days-PHI).

Echo 720 1.5-3 pt/A (0 days-PHI). 15.75 lb a.i./A/year total.

***Quadris** 11-15.4 fl oz/A (1 day-PHI).

***Cabrio** 12-16 oz/A (0 days-PHI).

***Pristine** 12.5-16 oz/A (0 days-PHI).

Topsin M 70WP 0.25-0.5 lb/A (0 days-PHI).

Mancozeb 75DF 2-3 lb/A (5 days-PHI) or other mancozeb formulation.

***Tanos 50DF** 8 oz/A (3 days-PHI). Must be tank-mixed with a protectant fungicide.

Gummy Stem Blight

Bravo Ultrex 1.8-2.7 lb/A (0 days-PHI).

Bravo Weather Stik 2-3 pt/A (0 days-PHI)

Equus 6F 1.5-2 pt/A (0 days-PHI).

Echo 720 1.5-3 pt/A (0 days-PHI). 15.75 lb a.i./A/year total.

Echo 90DF 1.25-2.5 lb/A (0 days-PHI). 15.75 lb a.i./A/year total.

***Quadris** 11-15.4 fl oz/A (1 day-PHI).

***Cabrio** 12-16 oz/A (0 days-PHI).

***Topsin M 70WP** 0.25-0.5 lb/A (0 days-PHI).

Scab

Effective disease control depends on use of disease-free seed and crop rotations of 3 to 4 years. Fungicides used for Gummy stem blight control may help. Fungicides may be ineffective when temperatures of less than 57°F persist for longer than 9 hours.

Downy Mildew

When conditions favor disease development, apply the following:

***Previcur Flex** 1.2 pt/A (2 days-PHI).

***Curzate 60DF** 3.2-5.0 oz/A (3 days-PHI). Apply with a protectant fungicide such as Manex. Maximum 30 oz per 12 months.

***Ranman** 2.1-2.75 lb/A (0 days-PHI).

***Gavel 75DF** 1.5-2.0 lb/A (5 days-PHI) (See label for use directions.)

***Tanos 50DF** 8 oz/A (3 days-PHI).

Bravo Weather Stik 1.5-2 pt/A (0 days-PHI).

Equus 720 1.5-2 pt/A (0 days-PHI).

***Flint** 4 oz/A (0 days-PHI) 16 oz/A/season (See label.)

***Quadris** 11-15.4 fl oz/A (1 day-PHI).

***Quadris Opti** 3.2 pt/A (1 day-PHI).

Maneb 75DF 1-2 lb/A (5 days-PHI) or other maneb formulation.

Mancozeb 75DF 2-3 lb/A (5 days-PHI) or other mancozeb formulation.

Powdery Mildew

When disease appears, apply one of the following:

***Bravo Weather Stik** 1.5-2 pt/A (0 days-PHI) or other chlorothalonil formulation.

***Procure** 50WS 4-8 oz/A (0 days-PHI).

Potassium bicarbonate (Armicarb 100, Kaligreen or other formulation) 2.5-5 lb/A (0 days-PHI).

Microthiol 80DF 4 lb/A (0 days-PHI) or other sulfur formulation.

***Nova** (40W) 2.5-5.0 oz/A (1 day-PHI).

Quintec 4-6 fl oz/A (3 days-PHI). Apply beginning before symptoms appear, and continue on 10-14 day intervals.

***Flint** 1.5-2.0 oz/A (0 days-PHI).

***Topsin M 70WP** 0.25-0.5 lb/A (0 days-PHI).

***Quadris** 11-15.4 fl oz/A (1 day-PHI).

***Quadris Opti** 3.2 pt/A (1 day-PHI).

Phytophthora Blight

Use seed treated with Apron XL LS or Allegiance FL to protect plants up to five weeks after sowing. Apply Acrobat 50WP (1 day REI, 0 days-PHI) at 6.4 oz/A tank-mixed with copper sulfate (e.g., Cuprofix Disperss at 2.0 lb/A, 1 day REI), **Prophyte** 3-6 pt/A (0 days-PHI) and/or ***Gavel** 75 DF 1.5-2.0 lb/A (5 days-PHI). Under conditions favorable for Phytophthora blight, apply fungicides at 5-day to 7-day intervals. Do not make more than two sequential applications before alternating with another effective product with a different mode of action. Five (5) applications/32 oz maximum per season.

Fusarium Wilt

Practice long rotations in which muskmelons are not grown. Although many cultivars are considered resistant, they may not survive in heavily infested soils. Muskmelon variety Early Dawn is very resistant. Although considered resistant, watermelon varieties Charleston Grey and Charleston Grey 133 may not survive in heavily infested fields. Crimson Sweet is reported to be more resistant. In some situations, soil fumigation may be profitable (see "Soil Fumigation," page 61).

Microdochium Blight

Rotate out of cucurbit crops at least 2 years. Choose fields with well-drained soil. If disease is found, spray one of the following every 7-14 days.

Mancozeb (75 DF) 2-3 lb/A (5 days-PHI).

Bravo Weather Stik 1.5-2.0 pt/A (0 days-PHI) or other formulation of chlorothalnil.

Cabrio 12-16 oz/A (0 days-PHI).

Flint 1.5-2.0 oz/A (0 days-PHI).

Quadris 11.0-15.4 fl oz/A (1 day-PHI).

Alternate fungicides in the strobilurin group (Quadris, Flint, Cabrio) with protectants (Bravo, Mancozeb).

Cucumber Mosaic Virus (CMV), Zucchini Yellow Mosaic Virus (ZYMV) and Watermelon Mosaic Virus (WMV)

All varieties are susceptible to these viruses. It may help to (1) kill perennial weeds (virus source plants) within 150 ft of planting and (2) control aphids (virus carriers). Resistant varieties are not yet available.

Bacterial Wilt

The bacteria that cause this disease are carried by the striped cucumber beetle and the spotted cucumber beetle. It is important to control these beetles with insecticide as soon as they appear in the spring. Once plants are infected with bacterial wilt, no control is possible.

*Follow guidelines for fungicide resistance management on the product label (see pages 59-60).

Insect Control

See the table on the next page for overview of insecticides used to control melon pests.

• Preplant treatment

Diazinon

For cutworms, wireworms.

Diazinon 14G: 14-28 lb/A.

Diazinon AG500 (4EC): 2-4 qt/A.

Diazinon 50WP: 4-8 lb/A.

Insecticides for Use on Melons in Ohio

(E = excellent; G = good; F = fair; P = poor; ✓ = pest listed on label but efficacy uncertain; - = pest not on label; rating in parentheses = pest not on label but product known to provide some control)

Pest >>	Pre-harvest interval (days)	Seedcorn maggot	Cucumber beetles	Spider mites	Aphids	Caterpillars	<i>Impact on beneficial insects</i>
<i>How often an insecticide has been needed on Ohio farms for this pest in the past >></i>		occasional especially in cool wet springs	every year especially early season	occasional especially in dry years	rare	rare	
ORGANOPHOSPHATES							
diazinon	3	-	G	✓	F	F	moderate
Dibrom (naled)	1	-	-	✓	-	✓	moderate/disruptive
dimethoate (Cygon)	3	-	-	(G)	G	-	disruptive
malathion (Cythion)	1, 3	-	G	F	F	F	low/moderate
MSR (oxydemetonmethyl)	14	-	-	F	G	-	moderate
CARBAMATES							
Furadan (carbofuran)	-	-	E	-	-	-	moderate
Lannate (methomyl)	1, 3	-	G	-	G	G	disruptive
Sevin (carbaryl)	3	-	G	-	-	F	disruptive
Vydate (oxamyl)	1	-	-	(G)	G	-	disruptive
PYRETHROIDS							
Asana (esfenvalerate)	3	-	G	-	-	G	disruptive
Baythroid (cyfluthrin)	0	-	G	-	-	✓	disruptive
Capture (bifenthrin)	3	-	G	F	F	G	disruptive
Danitol (fenpropathrin)	7	-	G	F	-	G	disruptive
Decis (deltamethrin)	3	-	G	-	-	✓	disruptive
Mustang (zeta-cyber.)	1	-	G	-	-	-	disruptive
Pounce (permethrin)	0	-	G	-	F	G	disruptive
NEONICOTINOIDS (CHLORONICOTINYLS)							
Actara (thiamethoxam)	0	-	F	-	E	-	low/moderate
Admire (imidacloprid)	21	(G)	E	-	G	-	low/moderate
Platinum (thiamethoxam)	30	-	F	-	G	-	low/moderate
Venom (dinotefuran)	1, 21	-	✓	-	F	-	low/moderate
OTHER INSECT NERVE POISONS							
Agri-Mek (abamectin)	7	-	-	G	-	-	low/moderate
Avaunt (indoxacarb)	3	-	-	-	-	-	low/moderate
Beleaf (flonicamid)	0	-	-	-	✓	-	-
Fulfill (pymetrozine)	0	-	-	-	G	-	low
Pyronyl, PyGanic (pyrethrins)	0	-	✓	-	✓	✓	moderate
Radiant (spinetoram)	3	-	-	-	-	✓	-
SpinTor (spinosad)	3	-	-	-	-	G	low
Thionex (endosulfan)	2	-	G	-	G	F	moderate
INSECT GROWTH REGULATORS							
Courier (buprofezin)	7	-	-	-	-	-	low/moderate
Neemix, Aza-Direct (azadirachtin)	0	-	-	-	(✓)	✓	low/moderate
Trigard (cyromazine)	0	-	-	-	-	-	low/moderate
MISCELLANEOUS							
Acramite (bifenazate)	3	-	-	✓	-	-	low
<i>Bacillus thuringiensis</i> (B.t.)	0	-	-	-	-	G	very low
cryolite (Kryocide)	14	-	✓	-	-	✓	low
Kelthane (dicofol)	2	-	-	G	-	-	low/moderate
Oberon (spiromesifen)	7	-	-	✓	-	-	-
soap (M-Pede)	0	-	-	F	F	-	low

• At-planting treatment

Bifenthrin (3 days-PHI)

For maggot, wireworm, grubs.

Brigade 10WSB: 8-16 oz/A. Apply in-furrow with seed.

Carbofuran

For striped cucumber beetle, spotted cucumber beetle, nematodes.

Furadan 4F: 2.4 fl oz/1,000 feet; apply in seed furrow or as 7-inch band over row. (Ohio 24c label)

Dinotefuran (21 days-PHI)

For aphids (suppression), thrips, whiteflies, leafhoppers, cucumber beetles.

Venom 70SG: 5-6 oz/A as in-furrow spray, post-seeding drench, or transplant drench. Limit 12 oz/A per season.

Imidacloprid (21 days-PHI)

For aphids, cucumber beetles, thrips, whiteflies.

Admire 2F, Alias 2F: 16-24 fl oz/A. Limit 24 oz/A per year.

Admire Pro (4.6F): 7-10.5 fl oz/A.

Thiamethoxam (30 days-PHI)

For aphids, flea beetles, leafhoppers, thrips, suppression of cucumber beetles.

Platinum 2SC: 5-11 fl oz/A.

• Bait treatment

Carbaryl (0-3 days-PHI)

Sevin 5B: 20 lb/A or 7.3 oz/1,000 sq ft. For cutworms. 1 day-PHI.

Prozap Sevin 10% Bait Granules: 10 lb/A. For cutworms.

• Foliar treatment

Note: For cucumber beetles, make the first application of insecticide as soon as the young plants start to break through the soil surface and repeat at 5-day intervals.

Abamectin (7 days-PHI)

For spider mites, leafhoppers.

Agri-Mek 0.15EC, Abba 0.15EC: 8-16 fl oz/A.

Bacillus thuringiensis (B.t.) (0 days-PHI)

For variegated cutworm, melonworm, loopers.

Agree WG (3.8% a.i.): 0.5-2 lb/A.

Biobit HP WP (6.4% a.i.): 0.5-2 lb/A.

CryMax WDG (15% a.i.): 0.5-1.5 lb/A.

DiPel DF (10.3% a.i.): 0.25-1 lb/A.

Javelin WG (6.4%): 0.5-1 lb/A for loopers.

Bifenazate (3 days-PHI)

For spider mites.

Acramite 50WS: 0.75-1.0 lb/A. Limit one spray per season.

Bifenthrin (3 days-PHI)

Brigade 2EC, Capture 2EC, Discipline 2EC, Fanfare 2EC, Sniper 2EC, Tundra 2EC: 2.6-6.4 fl oz/A for cucumber beetles, caterpillars, aphids; 5.12-6.4 fl oz/A for mites.

Brigade 10WSB: 8-16 oz/A.

Buprofezin (7 days-PHI)

For whiteflies.

Courier 0.7EC: 6-9 oz/A.

Carbaryl (3 days-PHI)

For cucumber beetles, flea beetles, melonworm.

Note: The repeated use of carbaryl may cause a buildup of aphids. Carbaryl may cause injury to young cucurbit plants if applied during periods of high humidity.

Carbaryl 90DF: 1.1 lb/A for beetles; 0.6-1.1 lb/A for worms.

Carbaryl 4L; Sevin XLR Plus (4EC); Sevin 4F: 1 qt/A for beetles; 0.5-1 qt/A for melonworm.

Sevin 80S: 1.25 lb/A for beetles; 0.67-1.25 lb/A for melonworm.

Sevin 50WP: 2 lb/A for beetles; 1-2 lb/A for melonworm.

Cryolite (14 days-PHI)

For flea beetles, loopers, melonworm, cucumber beetles.

Kryocide (96% a.i.): 8-16 lb/A.

Prokil Cryolite 96 (96% a.i.): 10-16 lb/A.

Cyfluthrin (0 days-PHI)

For cucumber beetles, melonworm.

Baythroid 2EC: 1.6-2.4 fl oz/A for melonworm; 2.4-2.8 fl oz/A for cucumber beetles. Limit 4 applications per year.

Cyromazine (0 days-PHI)

For leafminers.

Trigard 75WP WSP: 1/6 lb (1 packet)/A.

Deltamethrin (3 days-PHI)

Decis 1.5EC, Delta Gold 1.5EC: 1.0-2.4 fl oz/A for cutworms, leafhoppers. 1.5-2.4 fl oz/A for cucumber beetles, flea beetles, grasshoppers, melonworm, stink bugs.

Diazinon (3 days-PHI)

For aphids, mites, cucumber beetles.

Diazinon AG500 (4EC): 0.5-1.5 pt/A.

Diazinon 50WP: 0.5-1.5 lb/A.

Dicofol (2 days-PHI)

For mites.

Limit 2 applications.

Kelthane 50WP: 1.25 lb/A.

Dimethoate (3 days-PHI)

For aphids.

Dimethoate 2.67EC: 0.75-1.5 pt/A.

Dimethoate 4EC, Dimate 4EC: 0.5-2.0 pt/A.

Dinotefuran (1 day-PHI)

For aphids (suppression), thrips, whiteflies, leafhoppers, cucumber beetles.

Venom 70SG: 1-4 oz/A. Limit 6 oz/A per season.

Endosulfan (2 days-PHI)

For cucumber beetles, flea beetles, aphids, loopers, melonworm.

Limit 6 applications per year or 4 qt/A per year.

Thionex 3EC, Endosulfan 3EC: 0.7-1.3 qt/A for cucumber beetles, flea beetles, aphids, melonworm; 1.3 qt/A for loopers.

Thionex 50WP: 1-2 lb/A for cucumber beetles, flea beetles, aphids, melonworm; 12 lb/A for loopers.

Esfenvalerate (3 days-PHI)

For cucumber beetles, cutworms, loopers.

Asana XL 0.66EC, Adjourn 0.66EC: 5.8-9.6 fl oz/A. Limit 48 fl oz/A per season.

Fenpropathrin (7 days-PHI)

For striped cucumber beetle, fall armyworm, twospotted spider mite.

Danitol 2.4 EC: 10.7-16 fl oz/A.

Flonicamid (0 days-PHI)

For aphids.

Beleaf 50SG: 1.2-2.8 oz/A. Limit 3 applications per year.

Indoxacarb (3 days-PHI)

For melonworm.

Avaunt 30WG: 2.5-6 oz/A. Limit 24 oz/A per crop.

Malathion (1 or 3 days-PHI, depending on brand)

For cucumber beetles, aphids, mites.

Note: May cause injury if applied before plants start to vine. Do not apply unless plants are dry.

Malathion 5EC; Malathion 57EC: 2-3 pt/A for beetles; 1.5-2 pt/A for aphids, mites (1 day-PHI)

Malathion 8EC: 1.5-1.75 pt/A. (3 days-PHI)

Malathion 8 Aquamul: 1.75 pt/A for beetles; 1-1.75 pt/A for aphids, mites. (1 day-PHI)

Methomyl (1 or 3 days-PHI, depending on rate)

For cucumber beetles, flea beetles, aphids, variegated cutworm, loopers, fall armyworm, melonworm.

Limit 12 applications/crop.

Lannate 90SP: 0.5-1 lb/A for beetles, aphids, loopers, melonworm; 0.5 lb/A for cutworm, fall armyworm.

Lannate LV (2.4WSL): 1.5-3 pt/A for beetles, aphids, loopers, melonworm, fall armyworm; 1.5 pt/A for cutworm.

Methoxyfenozide (3 days-PHI)

For caterpillars, melonworm.

Intrepid 2F: 4-10 fl oz/A. Limit 4 applications or 64 fl oz/A per season.

Naled (1 day-PHI)

For mites, leafhoppers, loopers.

Dibrom 8EC: 1-2 pt/A.

Oxamyl (1 day-PHI)

For aphids, leafminers.

Vydate L (2WSL): 2-4 pt/A.

Oxydemetonmethyl (14 days-PHI, muskmelon; 7 days-PHI, watermelon)

For aphids, mites.

MSR (Metasystox-R 2SC): 1.5-2 pt/A. Limit 3 applications per season on muskmelon, 2 applications per season on watermelon.

Permethrin (0 days-PHI)

For cucumber beetles, cutworms, looper, melonworm.

Pounce 3.2EC, Arctic 3.2EC, Permethrin 3.2EC: 4-8 fl oz/A. Limit 64 fl oz/A per season.

Ambush 25WP; Pounce 25WP: 6.4-12.8 oz/A. Limit 102 oz/A per season.

Pymetrozine (0 days-PHI)

For aphids.

Fulfill 50WDG: 2.75 oz/A. Limit 5.5 oz/A per season.

Pyriproxyfen (7 days-PHI)

For whiteflies.

Esteem 35WP: 2.5-3 oz/A. Limit 2 applications or 6 oz/A per season.

Spinetoram (3 days-PHI)

For melonworm, thrips.

Radiant 1SC: 5-10 fl oz/A. Limit 6 applications per crop.

Spinosad (3 days-PHI)

SpinTor 2SC: 4-8 fl oz/A for caterpillars; 6-8 fl oz/A for leafminers, thrips. Limit 29 fl oz/A per year.

Entrust (80WP): 1.25-2.5 oz/A.

Spiromesifen (7 days-PHI)

For two-spotted spider mite, whiteflies.

Oberon 2SC: 7.0-8.5 fl oz/A. Limit 3 applications per crop season.

Thiamethoxam (0 days-PHI)

For aphids, flea beetles, cucumber beetles.

Actara 25WDG: 1.5-3 oz/A for aphids, flea beetles; 3-3.5 oz/A for suppression of cucumber beetles.

Zeta-cypermethrin (1 day-PHI)

For cucumber beetles, melonworm.

Mustang Max 0.8EC: 2.8-4 fl oz/A.

Mustang 1.5EW: 3-4.3 fl oz/A.

Weed Control

See “Weed Control” under “Cucumbers,” pages 142-143.