

Eggplant

Culture

Eggplant is a warm-season, frost-sensitive vegetable that requires a frost-free growing season of 135-150 days. Temperatures that produce the best growth are between 70-80°F. Temperatures below 65°F result in poor growth and fruit set. The use of black plastic mulch will improve yields in certain years.

Eggplant benefits from irrigation during the period of flowering and fruit set. If soil water is limited at these times, yields will be limited.

Varieties

Classic
Highbush Selections
Santana
Nadia (trial)

Long types and specialty

Ichiban
Millionaire

Producing Transplants

Plants require 8-10 weeks to reach suitable size before transplanting. About 3-4 oz of seed are needed to produce transplants for 1 A. Germinate at 70°F and transplant into cells that are 2 inches or larger. Harden plants at temperatures between 65-70°F and set in the field after all danger of frost.

Lime and Fertilizer

Maintain soil pH at 6.0-6.8.

For soils of average fertility, apply per acre: 100 lb N, 100 lb P₂O₅ and 100 lb K₂O before planting. Sidedress with 30 lb N/A, 2-3 weeks after transplanting.

Spacing

Rows: 3-5 ft apart.

In-row: Space plants 1.5-2 ft apart.

Plastic

Some researchers report that the yield of eggplant can be increased by 300% using clear plastic mulch. Black plastic mulch also increases yield of eggplants.

When using plastic mulch, apply all fertilizer before laying the mulch. Reduce total fertilizer amounts by 10%-15%. If soil has been fumigated, use a fertilizer in which 50% of the nitrogen fertilizer is in the nitrate form.

Harvest

Fruit should be harvested when firm and the outside color is glossy purple. Soft fruit, loss of glossy color and dark-colored seed are signs of overmaturity. Fruit must be harvested as it matures in order to ensure continued fruit set.

Disease Control

Phytophthora Crown Rot

Follow a 4-year rotation with crops outside the tomato, pepper, eggplant, and cucurbit families. Choose fields with well-drained soil and avoid low spots. Use raised beds. Fungicides are not fully effective against this disease. The following can be used in combination with each other and cultural practice:

Ridomil Gold EC applied to soil at planting at 1 pt/treated A; repeat twice to soil at 30-day intervals with 4 pt/A.
Acrobat 50WP 6.4 oz/A, tank mixed with Ridomil Gold.

Anthracnose, Early Blight and Phomopsis Fruit Rots

Follow a 4-year rotation. If disease threatens, apply fungicides according to label directions:

Maneb 75DF 1.5-2 lb/A (5 days-PHI).

Manex 1.2-1.6 qt/A (5 days-PHI).

Fixed copper formulations e.g. **Kocide 3000** 0.75 lb/A (0 days-PHI).

***Quadris** 6.2-15.4 oz/A (0 days-PHI).

***Cabrio** EG 8-12 oz/A (0 days-PHI).

Endura 2.5-3.5 oz/A (0 days-PHI) (early blight only).

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

Verticillium Wilt

The best way to manage this disease is to avoid fields with high populations of *Verticillium* organisms. Use a long rotation (4-5 yrs) with non-susceptible crops such as grains or grasses. See "Soil Treatments" on page 60. Some varieties appear to be partially resistant to *Verticillium* wilt, including Casper, Classic, Early Bird, Elondo, Epic, Long Purple, Nadia, Neon, Rosa Bianca, Vernal, and Viserba.

Insect Control

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

• At-planting or sidedress treatment

Dinotefuran (21 days-PHI)

For aphids (suppression), whiteflies, thrips, flea beetles, Colorado potato beetle.
Venom 70SG: 5-6 oz/A as transplant drench. Limit 12 oz/A per season.

Imidacloprid (21 days-PHI)

For aphids, whiteflies, Colorado potato beetle, flea beetles, thrips.
Admire 2F, **Alias 2F**: 16-24 fl oz/A. Limit 24 fl oz/A per year.
Admire Pro (4.6F): 7.0-10.5 fl oz/A.

Thiamethoxam (30 days-PHI)

For aphids, flea beetles, Colorado potato beetle, whiteflies.
Platinum 2SC: 5-11 fl oz/A.

• Foliar treatment

Abamectin (7 days-PHI)

For mites, Colorado potato beetle, leafminers.
Agri-Mek 0.15EC, **Abba 0.15EC**: 8-16 fl oz/A. Limit 48 fl oz/A per season.

Acetamiprid (7 days-PHI)

For aphids, Colorado potato beetle, whiteflies, thrips, flea beetles.
Assail 30SG: 1.4-4.0 oz/A.

Insecticides for Use on Eggplant 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)	Flea beetles	Colorado potato beetle	Spider mites	Aphids	Caterpillars	Impact on beneficial insects
<i>How often an insecticide has been needed on Ohio farms for this pest in the past>></i>		every year, often	most years	occasional in dry years	occasional	rare	
ORGANOPHOSPHATES							
Dibrom (naled)	1	✓	-	✓	✓	-	moderate/disruptive
malathion (Cythion)	3	-	-	F	F	-	low/moderate
MSR (oxydemetonmethyl)	7	-	-	✓	G	-	moderate
CARBAMATES							
Lannate (methomyl)	5	-	-	-	G	G	disruptive
Sevin (carbaryl)	3	G	P/F**	-	-	F	disruptive
Vydate (oxamyl)	1	-	✓	G	✓	-	disruptive
PYRETHROIDS							
Asana (esfenvalerate)	7	G	F/G*	-	-	G	disruptive
Baythroid (cyfluthrin)	7	✓	✓	-	-	✓	disruptive
Capture (bifenthrin)	7	G	F/G*	F	-	G	disruptive
Danitol (fenprothrin)	3	-	-	F	-	✓	disruptive
Decis (deltamethrin)	1	✓	✓	-	-	✓	disruptive
Hero (bifen. + zeta-cy.)	7	G	F/G	F	-	✓	disruptive
Mustang (zeta-cypermethrin)	1	G	F/G*	-	-	G	disruptive
Pounce (permethrin)	3	G	F/G*	-	-	G	disruptive
Proaxis (gamma-cyhalothrin)	5	G	F/G*	F	✓	G	disruptive
Warrior (lambda-cyhalothrin)	5	G	F/G*	-	-	G	disruptive
NEONICOTINOIDS (CHLORONICOTINYLS)							
Actara (thiamethoxam)	0	✓	✓	-	✓	-	low/moderate
Admire (imidacloprid)	21	F	G	-	G	-	low/moderate
Assail (acetamiprid)	7	G	G	-	G	-	low/moderate
Platinum (thiamethoxam)	30	✓	✓	-	G	-	low/moderate
Provado (imidacloprid)	0	-	G	-	G	-	low/moderate
Venom (dinotefuran)	1, 21	✓	✓	-	✓	-	low/moderate
OTHER INSECT NERVE POISONS							
Avaunt (indoxacarb)	3	-	-	-	-	✓	low/moderate
Beleaf (flonicamid)	0	-	-	-	✓	-	-
Fulfill (pymetrozine)	0	-	-	-	G	-	low
Proclaim (emamectin benzoate)	7	-	-	-	-	G	low/moderate
Pyronyl, PyGanic (pyrethrins)	0	✓	✓	-	✓	G	moderate
Radiant (spinetoram)	1	-	✓	-	-	✓	-
SpinTor (spinosad)	1	-	G	-	-	G	low
Thionex (endosulfan)	1	G	F/G*	-	G	-	moderate
INSECT GROWTH REGULATORS							
Confirm (tebufenozide)	7	-	-	-	-	G	low
Intrepid (methoxyfenozide)	1	-	-	-	-	G	low
Neemix, Aza-Direct (azadirachtin)	0	-	G	-	-	✓	low/moderate
MISCELLANEOUS							
Acramite (bifenazate)	3	-	-	G	-	-	low
<i>B. thuringiensis</i> (B.t. coleoptera strains; Novodor)	0	-	G	-	-	-	very low
<i>B. thuringiensis</i> (B.t. lepidoptera strains; DiPel)	0	-	-	-	-	G	very low
cryolite (Kryocide)	14	✓	G	-	-	✓	low
Oberon (spiromesifen)	7	-	-	G	-	-	-
soap (M-Pede)	0	-	-	F	F	-	low
Vendex (fenbutatin-oxide)	3	-	-	G	-	-	moderate
* some Ohio populations resistant.							
** most Ohio populations resistant.							

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

For Colorado potato beetle. Apply when 30% of eggs hatch or larvae are 1/4 inch or smaller.

Novodor FC (3% a.i.): 1-4 qt/A.

Bifenazate (3 days-PHI)

For spider mites.

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

Bifenthrin (7 days-PHI)

Brigade 2EC, Capture 2EC, Discipline 2EC, Fanfare 2EC, Sniper 2EC, Tundra 2EC: 2.1-6.4 fl oz/A for Colorado potato beetle, flea beetle, corn borer; 5.12-6.4 fl oz/A for mites, whiteflies.

Brigade 10WSB: 5.3-16 oz/A.

Bifenthrin + zeta-cypermethrin (7 days-PHI)

For flea beetles, Colorado potato beetle, caterpillars, spider mites.

Hero 1.24EC: 4-10.3 fl oz/A.

Carbaryl (3 days-PHI)

For flea beetles, Colorado potato beetle.

Carbaryl 90DF: 0.6-1.1 lb/A.

Carbaryl 4L; Sevin XLR Plus (4EC); Sevin 4F: 0.5-2 qt/A.

Sevin 80S: 0.62-2.5 lb/A.

Sevin 50WP: 1-2 lb/A.

Cryolite (14 days-PHI)

For Colorado potato beetle larvae, flea beetles, hornworms.

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

Cyfluthrin (7 days-PHI)

For Colorado potato beetle, flea beetles.

Baythroid 2EC: 1.6-2.8 fl oz/A.

Deltamethrin (1 day-PHI)

Decis 1.5EC, Delta Gold 1.5EC: 1.0-2.4 fl oz/A for leafhoppers, hornworms. 1.5-2.4 fl oz/A for Colorado potato beetle, flea beetles, cutworms. Limit 14.4 fl oz/A per season. Allow 3 days between applications.

Dinotefuran (1 day-PHI)

For aphids (suppression), whiteflies, thrips, flea beetles, Colorado potato beetle, stink bug, grasshoppers.

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

Emamectin benzoate (7 days-PHI)

For caterpillars.

Proclaim (5WDG): 2.4-4.8 oz/A. Limit 28.8 oz/A per season.

Endosulfan (1 day-PHI)

For flea beetles, Colorado potato beetle, aphids.

Limit 2 applications per year or 1.3 qt/A per year.

Thionex 3EC; Endosulfan 3EC: 0.67-1.33 qt/A.

Thionex 50WP: 1 lb/A.

Esfenvalerate (7 days-PHI)

For flea beetles, Colorado potato beetle.

Asana XL 0.66EC, Adjourn 0.66EC: 5.8-9.6 fl oz/A. Limit 67 fl oz/A per season.

Fenbutatin-oxide (hexakis) (3 days-PHI)

For spider mites.

Vendex 50WP: 2-3 lb/A. Limit 12 lb/A per year.

Fenpropathrin (3 days-PHI)

For fruitworm, stink bug, hornworms, spider mites.

Danitol 2.4EC: 10.7 fl oz/A. Limit 42.7 fl oz/A per season.

Flonicamid (0 days-PHI)

For aphids.

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

Gamma-cyhalothrin (5 days-PHI)

For Colorado potato beetle, caterpillars, flea beetles.

Proaxis (0.5EC): 1.92-3.84 fl oz/A.

Imidacloprid (0 days-PHI)

For aphids, whiteflies, Colorado potato beetle.

Provado 1.6F, Pasada 1.6F: 3.75 fl oz/A. Limit 18.75 fl oz/A per year. Do not apply if Admire used at-planting or sidedress.

Indoxacarb (3 days-PHI)

For caterpillars.

Avaunt 30WG: 2.5-3.5 oz/A.

Lambda-cyhalothrin (5 days-PHI)

For Colorado potato beetle, flea beetles.

Warrior 1EC, Silencer 1EC, Taiga Z 1CS: 1.92-3.84 fl oz/A.

Malathion (3 days-PHI)

For aphids, spider mites.

Malathion 5EC, 57EC: 1-1.5 pt/A.

Malathion 8EC: 0.5-1 pt/A.

Malathion 8 Aquamul: 0.75-3.5 pt/A.

Methomyl (5 days-PHI)

For aphids.

Limit 10 applications/crop.

Lannate 90SP: 0.25-1 lb/A.

Lannate LV (2.4WSL): 0.75-3 pt/A.

Methoxyfenozide (1 day-PHI)

For caterpillars.

Intrepid 2F: 4-16 fl oz/A.

Naled (1 day-PHI)

For aphids, mites, flea beetles.

Dibrom 8EC: 1-2 pt/A.

Oxamyl (1 day-PHI)

For Colorado potato beetle, aphids, mites.

Vydate 2SL: 1-2 qt/A.

Oxydemetonmethyl (7 days-PHI)

For aphids, spider mites.

MSR (Metasystox-R 2SC): 2 pt/A. Limit three applications per season.

Permethrin (3 days-PHI)

For Colorado potato beetle.

Use upper end of rate for potato beetle.

Ambush 25WP; Pounce 25WP: 6.4-12.8 oz/A.

Pounce 3.2EC, Arctic 3.2EC, Permethrin 3.2EC: 8 fl oz/A. Do not exceed 128 fl oz per season.

Pymetrozine (0 days-PHI)

For aphids.

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

Pyriproxyfen (14 days-PHI)

For whiteflies.

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

Spinetoram (1 day-PHI)

For Colorado potato beetle, caterpillars.

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

Spinosad (1 day-PHI)

For Colorado potato beetle larvae, various caterpillars.

Spintor 2SC: 2.25-4.5 oz/A. Limit 29 oz/A/year.

Entrust (80WP): 0.5-2.5 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.

Tebufenozide (7 days-PHI)

For black cutworm, corn borer, fall armyworm, hornworms.

Confirm 2F: 6-8 oz/A for small plants; 8-16 oz/A for larger plants and heavy infestation.

Limit 64 fl oz/A per year.

Thiamethoxam (0 days-PHI)

For beetles, aphids, whiteflies.

Actara 25WDG: 2-3 oz/A for flea beetles, Colorado potato beetle, aphids; 3-3.5 oz/A for whiteflies. Limit 11 oz/A per season.

Zeta-cypermethrin (1 day-PHI)

For flea beetles, Colorado potato beetle, caterpillars.

Mustang 1.5EW: 2.4-4.3 fl oz/A.

Mustang Max (0.8EC): 2.24-4.0 fl oz/A.

Weed Control

Preemergence

Devrinol 50DF: Controls germinating annual grasses and some broadleaf weeds. Apply 2-4 lb/A Devrinol 50 DF. Incorporate to a depth of not more than 1 inch.

Dacthal 75W: Controls germinating annual broadleaf weeds and grasses. Apply 8.0-10.6 lb/A Dacthal 75W 4 to 6 weeks after transplanting. Dacthal does not control emerged weeds.

Sandea: For control of specified broadleaf weeds in row middles of eggplant growing in plastic mulch, apply 0.5-1.0 oz/A. Do not spray the plastic. Two applications of Sandea are permitted per crop cycle; for example a preemergence application followed by a postemergence, up to a maximum rate applied of 2 oz/A per growing season.

Postemergence

Poast: Controls emerged annual and perennial grasses. Apply 1-1.5 pt/A Poast (20 days-PHI). Do not exceed 4.5 pt/A/season. Add 1 qt/A nonphytotoxic oil concentrate. Rate is dependent on grass species and stage of development.

Select: Controls emerged annual and perennial grasses. Apply 8 fl oz/A (20 days-PHI). Do not exceed 32 fl oz/A/season. Add a crop oil concentrate at 1% on a volume basis (v/v).

Sandea: For control of yellow nutsedge and specified broadleaf weeds in row middles of eggplant growing in plastic mulch, apply 0.5-1.0 oz/A. Do not spray the plastic. Always include a nonionic surfactant (minimum 80% active ingredient) at 1-2 quarts/100 g spray mixture. Crop oil concentrate and silicone-based adjuvants are not recommended. Avoid contact of the herbicide with planted crop. Two applications of Sandea are permitted per crop cycle, for example a preemergence application followed by a postemergence, up to a maximum rate applied of 2 oz/A per growing season (30 days-PHI).