Sandea (75) (halosulfuron) POST PRE | 0.5-1.5 oz. per acre. Apply before, during, or after harvest. Drop nozzles and using COC or NIS are recommended for applications after harvest. For first year transplants do not apply sooner than 6 weeks after fern emergence. Do not exceed 2 applications per crop cycle, or 2 oz. per acre per 12-month period. Has residual soil activity. Effective on nutsedge. REI: 12-hour. PHI: 1-day. HRAC 02.

Sinbar WDG (80) (terbacil) POST PRE | 0.62-1.5 lbs. per acre. Established crowns or direct-seeded crops only. Do not use on sandy soil or on soil with less than 1% organic matter. *Established crowns:* Apply in spring after cutting fern and prior to spear emergence. May also be applied after a clean cutting. *Seeded crops:* At planting spray activated charcoal at 300 lbs.per acre of actual area treated in a 1-inch band over the row (equivalent to 15 lbs. per acre of crop with 20-inch row spacing), then apply Sinbar. Do not plant other crops within 2 years of application. 8-12 weeks residual activity. REI: 12-hour. PHI: 5-day. HRAC 05.

Solicam DF (78.6) (norflurazon) PRE | 2.5-5 lbs. per acre. *Established plantings only.* Do not apply within 12 months of planting. Apply preemergence to soil free of weeds and debris. REI: 12-hour. PHI: 14-day. HRAC 12.

Spartan 4F (sulfentrazone) PRE | 4.5-12 fl. oz. per acre. *Michigan only - applicators must have a supplemental label.* Apply in spring before crop emerges. Use low rate on light soil. Do not use on soils with less than 1% organic matter. Do not exceed 1 application and 12 fl. oz. per acre per season. REI: 12-hour. PHI: 14-day. HRAC 14.

Stinger (3) (clopyralid) POST | 8-10.7 fl. oz. per acre. Apply before or during harvest. May cause some crooking of spears. Controls Canada thistle, marestail, mayweed, nightshade, plantain, smartweeds. Do not exceed 10.7 fl. oz. per acre per year. Avoid application 2 years in succession. REI: 12-hour. PHI: 2-day. HRAC 04.

trifluralin products (trifluralin) PRE |
Established plantings only. Use 4EC formulations at 2-4 pts. per acre. Use 10G formulations at 10-20 lbs. per acre. Use lower rates on coarse soils. Apply and incorporate 1-2 inches early in the spring when spears are at least 4 inches below soil surface. See product label for split application instructions. 4-6 weeks of residual activity. REI: 12-hour. HRAC 03.

Celery – Horticulture

Major update by Ben Phillips, Liz Maynard, Ben Werling – Oct 2020
Reviewed by Liz Maynard – Aug 2021

Crop Description

Commercial celery (*Apium graveolens*) production in the United States began in Michigan in the 1800s. Numbered commercial varieties are maintained by a small breeding effort supported directly by the largest growers of the commodity. Other seed sources are available for smaller-scale growers, and include bushier thin-stalked types, and taller thick-stalked types. The standard green varieties can be blanched to maintain a lighter white color of the inner stalks through soil-hilling or by dense plant spacing. There are also red varieties. Seeds are produced in the second year of production if plants are overwintered under mulch.

Planting and Spacing

Celery seed is small and difficult to germinate, thus all commercial celery is planted from greenhouse-grown transplants produced in plug trays using peat-based media. Allow 8 to 10 weeks for transplant production.

In early February, seeds are sown in greenhouses and are ready for transplanting to the field in about eight weeks. Transplanting begins 6 to 8 weeks before last frost, and ends 6 to 8 weeks after last frost. Schedule planting so that a uniform quantity of celery is ready to harvest every week. Using transplants instead of direct seeding ensures uniform stands and faster maturing crops. Often, succession plantings are started every three weeks.

Harden off transplants by reducing water, not temperature. Celery is a cool-season crop that produces best at temperatures of 60° to 80° F. Plants can withstand light frosts, but prolonged frosts below 28° F will cause damage. Plants may form seed stalks (bolt) if exposed to temperatures below 55° F for 7 days or longer.

Traditionally, celery has been grown on muck soils, but it can be grown on coarse-textured mineral soils. Regardless of soil type, high fertility and moisture are necessary for tender succulent stalks.

Rotate celery with crops such as onions or corn whenever possible to avoid building up pests in the soil. At the end of the season, consider planting a winter cover crop of barley or rye to reduce erosion and add active organic matter to the soil.

Typical spacing for celery is rows 2 feet apart with plants 6 inches apart in row. One plant per square foot.

Fertilizing

pH: Maintain the soil pH above 5.5 in muck soils and 6.5 in mineral soils.

Before planting, apply 40 pounds N per acre, 0 to 230 pounds P_2O_5 per acre, and 0 to 500 pounds K_2O per acre based on soil test results and recommendations from your state. Celery is responsive to B. Apply 2 to 4 pounds of B per acre in banded or broadcast fertilizer to avoid stem cracking.

Banding fertilizer at transplanting can help when soil is less than 55° F. In these cases, band up to 40 pounds N per acre, up to 100 pounds P_2O_5 per acre, and up to 40 pounds K_2O per acre, and subtract those amounts from the preplant application.

Sidedress with 40 to 50 pounds N per acre two or three times, three or four weeks apart, starting six weeks after transplanting, or apply equivalent amount of N through fertigation. Reduce the amount of fertilizer N applied by the value of N credits from green manures, legume crops grown in the previous year, compost and animal manures, and soils with more than 3 percent organic matter. The total amount of N from fertilizer (including starter) and other credits should be 200 pounds per acre on mineral soils and 150 pounds per acre on muck soils

Use overhead sprinkler or drip irrigation to apply water frequently to the shallow-rooted crop. If the soil gets too dry, physiological disorders such as blackheart (a calcium deficiency), will develop.

Harvesting

Once celery reaches marketable size, there is a narrow harvest window (about six to eight days) before quality declines significantly. Both fresh market and processing celery can be harvested either by hand or mechanically. Time from transplanting to harvest ranges between 100 and 130 days.

Harvest celery by pulling the entire plant. Cut off the roots and trim the tops. Wash if necessary and cool quickly with water or forced air. Maintain a cold chain to market for best quality. Ideal storage conditions are near freezing and high humidity.

Celery – Diseases

Reviewed by Dan Egel, Mary Hausbeck – Sept 2021

Recommended Controls

Anthracnose of Celery - Colletotrichum Fungus

Disease and symptom development are favored by periods of warm temperatures (>68 F) combined with high humidity. Symptoms include curled/cupped leaves, sporadic leaf margin discoloration, twisted petioles and small, oval lesions on petioles. Symptoms of anthracnose can be confused with those associated with aster yellows except that the affected foliage remains green.

Pesticide

azoxystrobin products (azoxystrobin) | Products include AzoxyStar, AframeTM , Satori Fungicide , Gold Rush, Dexter SC, Quadris Flowable, Acadia 2 SC, Heritage, Tetraban Fungicide, Willowood Azoxy 2SC. See product labels for various rates. REI: 4-hour. PHI: 0-day. FRAC 11.

Cabrio EG (20) (pyraclostrobin) | 12-16 oz. per acre. Do not apply more than 0.8 lb a.i. pyraclostrobin (64 oz. Cabrio) per acre per season. Do not make more than two (2) sequential applications of Cabrio before alternating to a labeled non-Group 11 fungicide with a different mode of action. REI: 12-hour. PHI: 0-day. FRAC 11.

Merivon (fluxapyroxad, pyraclostrobin) | 4-11 fl. oz. per acre. REI: 12-hour. PHI: 1-day. FRAC 07, FRAC 11.

Pristine 38WG (boscalid, pyraclostrobin) | 10-15 oz. per acre. REI: 12-hour. PHI: 0-day. FRAC 07, FRAC 11.

Rhyme (2.08SC) (flutriafol) | 5-7 fl. oz. per acre. Apply preventively or when conditions are favorable for disease development. Do not apply more than 4 applications per year. REI: 12-hour. PHI: 7-day. FRAC 03.

Topguard EQ (SC) (flutriafol, azoxystrobin) | 6.0-8.0 fl. oz. per acre. Not a single application may exceed 8 fl. Oz. of product per acre. Do not apply more than 4 applications per year. REI: 12-hour to 3-day. PHI: 0-day. FRAC 03, FRAC 11.

Aster Yellows (Purple-Top Wilt) of Multiple Crops - Phytoplasma Mollicutes

Pesticide

Insecticides | Use an insecticide to control leafhoppers that transmit the disease. Leafhoppers must be controlled before they feed. See Insect section.

Bacterial Blight of Celery - Pseudomonas Bacteria

Symptoms include leaf blight and extensive leaf death that requires additional trimming at harvest, resulting in yield loss. May be seedborne.

Non-Pesticide

Use disease-free seed. Hot water seed treatment may reduce this seedborne disease. Use temperatures and times of 118 F for 30 minutes for celery. Rotate to non-host crops for 2 years. Varieties with partial resistance are available. Prompt destruction of the finished crop with tillage to rapidly breakdown tissue is an important method to prevent disease build-up.

Pesticide

copper products (copper hydroxide, copper octanoate, copper oxychloride, copper sulfate, copper diammonium diacetate complex, cuprous oxide) | Several formulations of copper (Badge, Champ, Kocide) are labelled for use and may slow the spread of bacterial blight. See label for directions. REI: 4 to 48-hour. PHI: 0-day. FRAC M01. *OMRI-listed.*

Crater Rot of Celery - Rhizoctonia Fungus

Non-Pesticide

Clean and sanitize transplant trays, benches, and tools. Rogue infected transplants. Avoid working field under wet conditions. Prompt destruction of the finished crop with tillage to rapidly breakdown tissue is an important method to prevent disease build-up.

Pesticide

azoxystrobin products (azoxystrobin) | Products include AzoxyStar, AframeTM , Satori Fungicide , Gold Rush, Dexter SC, Quadris Flowable, Acadia 2 SC, Heritage, Tetraban Fungicide, Willowood Azoxy 2SC. See product labels for various rates. REI: 4-hour. PHI: 0-day. FRAC 11.

Catamaran (potassium phosphite, chlorothalonil) | 4-5 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 33, FRAC M05.

chlorothalonil products (chlorothalonil) | Several formulations of chlorothalonil (Bravo, Echo, Equus) are labeled at various rates. See label for directions. REI: 12-hour. PHI: 7-day. FRAC M05.

Evito (3.98SC) (fluoxastrobin) | Rate depends on formulation. Also available as Tepera and Aftershock. Do not apply more than 4 applications per acre per year, with a minimum re-treatment interval of 7-day between applications REI: 12-hour. PHI: 3-day. FRAC 11.

Luna Sensation (fluopyram, trifloxystrobin) | 5.8 fl. oz. per acre. Apply using ground, aerial or chemigation equipment. Apply at the critical timings for disease control. Refer to university and/or extension guidelines for best application timings. Continue as needed on a 14-day interval. Do not apply more that 15.3 fl. Oz. of Luna Sensation per acre per year. Do not make more than 2 sequential application of Luna sensation or any group 7 or group 11 containing fungicide before rotating with fungicide from a different Group. REI: 12-hour. FRAC 07, FRAC 11.

phosphite and phosphorous acid products (phosphorous acid, potassium phosphite, mono-dipotassium salts of phosphorous acid, mono- and dibasic sodium, potassium, and ammonium phosphites, fosetyl-aluminum) | Rates vary depending on formulation. REI: 4 to 12-hour. PHI: 0-day. FRAC 33.

Quadris Opti (SC) (azoxystrobin, chlorothalonil) | 2.4-3.7 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 11, FRAC M05.

Damping-Off Seed and Seedling Rots of Multiple Crops - Multiple Pathogens

Michigan State University research has found *Pythium* spp. causing damping-off of celery in greenhouses can result in poor field establishment.

Non-Pesticide

Practice good greenhouse sanitation of equipment, tools propagation trays/pots, and surfaces. Avoid excess moisture to the transplants in the greenhouse by monitoring irrigation frequency. Plant in warm field soils. The fungi responsible for damping-off in field soils cause more loss when the seedling is slow to emerge.

Pesticide

Ridomil Gold SL (4SC) (mefenoxam) | 1-2 pts. per acre. Preplant incorporated (broadcast or band): Apply as a soil application in sufficient water or liquid fertilizer to provide

uniform coverage and mechanically incorporated in the top 2 inches of soil. For banded application, a 7-inch band is recommended. Surface application (Broadcast or band): Apply in sufficient water or liquid fertilizer to provide uniform coverage. Do not make more than one soil application per year. Other formulations include MetaStar, Subdue Maxx, Ultra Flourish, Xyler and others. Rates vary by formulation. REI: 48-hour. PHI: 7-day. FRAC 04.

Uniform (L) (mefenoxam, azoxystrobin) | 0.34 fl. oz. per 1,000 ft. of row. Make one application per crop per season. REI: 0-hour. PHI: 0-day. FRAC 04, FRAC 11.

Early Blight of Celery - Cercospora Fungus

Early blight (Cercospora leaf blight) symptoms include small, yellow spots that rapidly enlarge to tan or gray lesions. All above ground tissues of celery can become infected, resulting in losses of 50% or more when blighted stalks or leaves have to be removed at harvest. May be seedborne.

Non-Pesticide

Use disease-free seed. Hot water seed treatment may reduce this seedborne disease. Use temperatures and times of 118 F for 30 minutes for celery. Rotate to non-host crops for 2 years. Varieties with partial resistance are available. Prompt destruction of the finished crop with tillage to rapidly breakdown tissue is an important method to prevent disease build-up.

Pesticide

azoxystrobin products (azoxystrobin) | Products include AzoxyStar, AframeTM , Satori Fungicide , Gold Rush, Dexter SC, Quadris Flowable, Acadia 2 SC, Heritage, Tetraban Fungicide, Willowood Azoxy 2SC. See product labels for various rates. REI: 4-hour. PHI: 0-day. FRAC 11.

Cabrio EG (20) (pyraclostrobin) | 12-16 oz. per acre. Do not apply more than 0.8 lb a.i. pyraclostrobin (64 oz. Cabrio) per acre per season. Do not make more than two (2) sequential applications of Cabrio before alternating to a labeled non-Group 11 fungicide with a different mode of action. REI: 12-hour. PHI: 0-day. FRAC 11.

Catamaran (potassium phosphite, chlorothalonil) | 4-5 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 33, FRAC M05.

chlorothalonil products (chlorothalonil) | Several formulations of chlorothalonil (Bravo, Echo, Equus) are labeled at various rates. See label for directions. REI: 12-hour. PHI: 7-day. FRAC M05.

Evito (3.98SC) (fluoxastrobin) | Rate depends on formulation. Also available as Tepera and Aftershock. Do not apply more than 4 applications per acre per year, with a minimum re-treatment interval of 7-day between applications REI: 12-hour. PHI: 3-day. FRAC 11.

Flint Extra (4.05) (trifloxystrobin) | 2.5-2.9 fl. oz. per acre. Maximum application volume: 30-gallons per acre. REI: 12-hour. PHI: 0-day. FRAC 11.

Fontelis (1.67SC) (penthiopyrad) | 14-24 fl. oz. per acre. REI: 12-hour. PHI: 3-day. FRAC 07.

Luna Sensation (fluopyram, trifloxystrobin) | 4-5.8 fl. oz. per acre Apply using ground, aerial or chemigation equipment. Apply at the critical timings for disease control. Refer to university and/or extension guidelines for best application timings. Continue as needed on a 14-day interval. Do not apply more that 15.3 fl. Oz. of Luna Sensation per acre per year. Do not make more than 2 sequential application of Luna sensation or any group 7 or group 11 containing fungicide before rotating with fungicide from a different Group. REI: 12-hour. PHI: 7-day. FRAC 07, FRAC 11.

Merivon (fluxapyroxad, pyraclostrobin) | 4-11 fl. oz. per acre. REI: 12-hour. PHI: 1-day. FRAC 07, FRAC 11.

Miravis Prime (SC) (pydiflumetofen, fludioxonil) | 9.2-13.4 fl. oz. per acre. Do not make more than two consecutive applications of Miravis prime or other group 7 and 12 fungicides before alternation with a fungicide is no in Group 7 or 12. REI: 12-hour. PHI: 0-day. FRAC 07, FRAC 12.

Pristine 38WG (boscalid, pyraclostrobin) | 10-15 oz. per acre. REI: 12-hour. PHI: 0-day. FRAC 07, FRAC 11.

propiconazole products (propiconazole) | 4 fl. oz. per acre. PropiMax EC and Tilt are labeled. REI: 12-hour. PHI: 14-day. FRAC 03.

Quadris Opti (SC) (azoxystrobin, chlorothalonil) | 2.4-3.7 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 11, FRAC M05.

Quilt (SE) (azoxystrobin, propiconazole) | 14 fl. oz. per acre. Other formulations include Cover XL, MiCrop Fungicide, AFrame Plus, Avaris 2XS, Quilt Xcel. REI: 12-hour. PHI: 14-day. FRAC 11, FRAC 03.

Rhyme (2.08SC) (flutriafol) | 5-7 fl. oz. per acre. Apply preventively or when conditions are favorable for disease development. Do not apply more than 4 applications per year. REI: 12-hour. PHI: 7-day. FRAC 03.

Topguard EQ (SC) (flutriafol, azoxystrobin) | 6.0-8.0 fl. oz. per acre. Not a single application may exceed 8 fl. Oz. of product per acre. Do not apply more than 4 applications per year. REI: 12-hour to 3-day. PHI: 0-day. FRAC 03, FRAC 11.

Late Blight of Celery - Septoria Fungus

Late blight (Septoria leaf blight) include irregularly-shaped brown spots on leaves with pycnidia similar in appearance to grains of ground black pepper. Over time, these leaf spots expand and cause the entire leaf to die. May be seedborne.

Non-Pesticide

Use disease-free seed. Hot water seed treatment may reduce this seedborne disease. Use temperatures and times of 118 F for 30 minutes for celery. Rotate to non-host crops for 2 years. Varieties with partial resistance are available. Prompt destruction of the finished crop with tillage to rapidly breakdown tissue is an important method to prevent disease build-up.

Pesticide

azoxystrobin products (azoxystrobin) | Products include AzoxyStar, AframeTM , Satori Fungicide , Gold Rush, Dexter SC, Quadris Flowable, Acadia 2 SC, Heritage, Tetraban Fungicide, Willowood Azoxy 2SC. See product labels for various rates. REI: 4-hour. PHI: 0-day. FRAC 11.

Cabrio EG (20) (pyraclostrobin) | 12-16 oz. per acre. Do not apply more than 0.8 lb a.i. pyraclostrobin (64 oz. Cabrio) per acre per season. Do not make more than two (2) sequential applications of Cabrio before alternating to a labeled non-Group 11 fungicide with a different mode of action. REI: 12-hour. PHI: 0-day. FRAC 11.

Catamaran (potassium phosphite, chlorothalonil) | 4-5 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 33, FRAC M05.

chlorothalonil products (chlorothalonil) | Several formulations of chlorothalonil (Bravo, Echo, Equus) are labeled at various rates. See label for directions. REI: 12-hour. PHI: 7-day. FRAC M05.

Evito (3.98SC) (fluoxastrobin) | Rate depends on formulation. Also available as Tepera and Aftershock. Do not apply more than 4 applications per acre per year, with a minimum re-treatment interval of 7-day between applications REI: 12-hour. PHI: 3-day. FRAC 11.

Flint Extra (4.05) (trifloxystrobin) | 2.5-2.9 fl. oz. per acre. Maximum application volume: 30-gallons per acre. REI: 12-hour. PHI: 0-day. FRAC 11.

Fontelis (1.67SC) (penthiopyrad) | 14-24 fl. oz. per acre. REI: 12-hour. PHI: 3-day. FRAC 07.

Luna Sensation (fluopyram, trifloxystrobin) | 4-5.8 fl. oz. per acre Apply using ground, aerial or chemigation equipment. Apply at the critical timings for disease control. Refer to university and/or extension guidelines for best application timings. Continue as needed on a 14-day interval. Do not apply more that 15.3 fl. Oz. of Luna Sensation per acre per year. Do not make more than 2 sequential application of Luna sensation or any group 7 or group 11 containing fungicide before rotating with fungicide from a different Group. REI: 12-hour. PHI: 7-day. FRAC 07, FRAC 11.

Merivon (fluxapyroxad, pyraclostrobin) | 4-11 fl. oz. per acre. REI: 12-hour. PHI: 1-day. FRAC 07, FRAC 11.

Pristine 38WG (boscalid, pyraclostrobin) | 10-15 oz. per acre. REI: 12-hour. PHI: 0-day. FRAC 07, FRAC 11.

propiconazole products (propiconazole) | 4 fl. oz. per acre. PropiMax EC and Tilt are labeled. REI: 12-hour. PHI: 14-day. FRAC 03.

Quadris Opti (SC) (azoxystrobin, chlorothalonil) | 2.4-3.7 pts. per acre. REI: 12-hour. PHI: 7-day. FRAC 11, FRAC M05.

Quilt (SE) (azoxystrobin, propiconazole) | 14 fl. oz. per acre. Other formulations include Cover XL, MiCrop Fungicide, AFrame Plus, Avaris 2XS, Quilt Xcel. See label for directions REI: 12-hour. PHI: 14-day. FRAC 11, FRAC 03.

Reason 500SC (4.13) (fenamidone) | 8.2 fl. oz. per acre. REI: 12-hour. PHI: 2-day. FRAC 11.

Rhyme (2.08SC) (flutriafol) | 5-7 fl. oz. per acre. Apply preventively or when conditions are favorable for disease development. Do not apply more than 4 applications per year. REI: 12-hour. PHI: 7-day. FRAC 03.

Switch 62.5WG (cyprodinil, fludioxonil) | 11-14 oz. per acre. Make no more than two applications of Switch 62.5 WG. Another formulation, Alterity 62.5 WG, allows up to 56 oz. per acre of Alterity 62.5 WG per year. REI: 12-hour. PHI: 0-day. FRAC 09, FRAC 12.

Topguard EQ (SC) (flutriafol, azoxystrobin) | 6.0-8.0 fl. oz. per acre. Not a single application may exceed 8 fl. Oz. of product per acre. Do not apply more than 4 applications per year. REI: 12-hour to 3-day. PHI: 0-day. FRAC 03, FRAC 11.

Nematodes

Pesticide

K-PAM HL (5.8L) (metam potassium) | 30-62 gals. per acre. Use high rates on muck, and lower rates on sands. In the fall, when soil at 6 inches is above 50 F and moist, place K-PAM HL or Sectagon K54 about 8 inches beneath the surface through shank-injectors, or broadcast sprayers directly in front of tillage tools to bury it. Seal with soil packing or irrigation. Or, in the spring, it can be applied through drip irrigation under unperforated plastic beds. Before planting,

allow product to dissipate for 1 week for every 10 gals. per acre plus 1 more week. REI: 5-day. IRAC 08F, FRAC M03, HRAC NC. *RUP.*

Nimitz (4EC) (fluensulfone) | 3.5-7 pts. per acre. Do not use on direct-seeded plants. May be broadcast, banded, or drip-applied in the spring up to 7 days before planting at a depth of 8 inches. Effectiveness is reduced on muck and clay soils. REI: 12-hour. IRAC UN.

Telone C-17 (L) (1,3-dichloropropene, chloropicrin) | *Muck soils*: Use C-17 formulation at 27.4-30 gals. per acre, and C-35 formulation at 33-36 gals. per acre. *Mineral soils*: Use C-17 formulation at 10.8-17.1 gals. per acre, and C-35 formulation at 13-20.5 gals per acre. In the fall, when soil at 6 inches is above 50 F and moist, place Telone C-17 or C-35 about 8 inches beneath the surface through shank-injectors, or broadcast sprayers directly in front of tillage tools to bury it. Seal with soil packing, irrigation, or plastic. Or, in the spring, InLine may be applied through drip irrigation under unperforated plastic beds at 13-20.5 gals. per acre on mineral soils only. Before planting, allow product to dissipate for 1 week for every 10 gals. per acre plus 1 more week. REI: 3-5-day. IRAC UN, FRAC NC, IRAC 08B. *RUP.*

Telone II (9.85L) (1,3-dichloropropene) | *Muck soils*: Use at 25 gals. per acre. *Mineral soils*: Use at 9-12 gals. per acre. In the spring or fall, when soil at 6 inches is above 50 F and moist, place Telone II about 8 inches beneath the surface through shank-injectors, or broadcast sprayers directly in front of tillage tools to bury it. Seal with soil packing or irrigation. Or, in the spring, Telone EC may be applied through drip irrigation under unperforated plastic beds at 9-18 gals. per acre on mineral soils only. Before planting, allow product to dissipate for 1 week for every 10 gals. per acre plus 1 more week. REI: 5-day. IRAC UN, FRAC NC. *RUP.*

VAPAM HL (4.25L) (metam sodium) | 37.5-75 gals. per acre. Use high rates on muck, and lower rates on sands. In the fall, when soil at 6 inches is above 50 F and moist, place VAPAM HL or Sectagon K42 about 8 inches beneath the surface through shank-injectors, or broadcast sprayers directly in front of tillage tools to bury it. Seal with soil packing or irrigation. Or, in the spring, it can be applied through drip irrigation under unperforated plastic beds. Before planting, allow product to dissipate for 1 week for every 10 gals. per acre plus 1 more week. REI: 5-day. IRAC 08F, FRAC M03, HRAC NC. *RUP.*

Vydate L (2WSL) (oxamyl) | 0.5-2 pts. per acre. *MI, and OH only.* Apply as a banded or shank-injected pre-plant, at-plant in-furrow or directed post-plant soil treatment with at least 20 gals. water per acre incorporated 2-4 inches deep by water or mechanical means. Start post-plant applications 3 weeks after transplanting. Allow 14 days between applications. Do not exceed 5 total applications, or 24 pts. per acre per season. REI: 48-hour. PHI: 21-day. IRAC 01A. *RUP.*

Rust of Multiple Crops - Puccinia Fungus

Pesticide

Flint Extra (4.05) (trifloxystrobin) | 2.5-2.9 fl. oz. per acre. Maximum application volume: 30-gallons per acre. REI: 12-hour. PHI: 0-day. FRAC 11.

Luna Sensation (fluopyram, trifloxystrobin) | 4-5.8 fl. oz. per acre Apply using ground, aerial or chemigation equipment. Apply at the critical timings for disease control. Refer to university and/or extension guidelines for best application timings. Continue as needed on a 14-day interval. Do not apply more that 15.3 fl. Oz. of Luna Sensation per acre per year. Do not make more than 2 sequential application of Luna sensation or any group 7 or group 11 containing fungicide before rotating with fungicide from a different Group. REI: 12-hour. PHI: 7-day. FRAC 07, FRAC 11.

Celery – Insects

Reviewed by Laura Ingwell, Zsofia Szendrei, Elizabeth Long – Sept 2021

Recommended Controls

Aphids

Over-treatment with pyrethroids (IRAC 3A) may cause aphid problems.

Treat when more than 3% of plants are infested **or** there are more than 6 aphids per 100 sweeps.

Pesticide

Actara (25WDG) (thiamethoxam) | 1.5-3.0 oz. per acre. Apply as a foliar treatment. Allow 7 days between applications. Do not exceed 11 oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 04A.

Admire Pro (4.6SC) (imidacloprid) | 4.4-10.5 fl. oz. per acre. Do not exceed 10.5 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Assail 30SG (acetamiprid) | Use 30SG formulations at 2-4 oz. per acre and do not exceed 20 oz. per acre per season. Use 70WP formulations at 0.8-1.7 oz. per acre and do not exceed 8.5 oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 7-day. IRAC 04A.

Belay (2.13SC) (clothianidin) | *Soil applications*: 9-12 fl. oz. per acre. *Foliar applications*: 3-4 fl. oz. per acre. Do not exceed 12 fl. oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 04A.

Beleaf (50SG) (flonicamid) | 2-2.8 oz. per acre. Allow 7 days between applications. Do not exceed 8.4 oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 29.

Brigade 2EC (bifenthrin) | Use 2EC formulations at 2.1-6.4 fl. oz. per acre and do not exceed 32 fl. oz. per acre per season. Use 10DF, 10WP, or 10WSB formulations at 5.3-16 oz. per acre and do not exceed 80 oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 7-day. IRAC 03A. *RUP.*

Closer SC (2) (sulfoxaflor) | 1.5-2 fl. oz. per acre. Use high rate when pest pressure is heavy. Do no exceed 17 fl. oz. per acre per year. Allow 7 days between applications. REI: 12-hour. PHI: 3-day. IRAC 04C.

Durivo (SC) (thiamethoxam, chlorantraniliprole) | 10-13 fl. oz. per acre. Apply as a soil treatment. Do not exceed 13 fl. oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A, IRAC 28.

Exirel (0.83SE) (cyantraniliprole) | 13.5-20.5 fl. oz. per acre. Use an effective adjuvant. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 28.

Fulfill (50WDG) (pymetrozine) | 2.75 oz. per acre. May require 5-7 days for aphid mortality. Allow 7 days between applications. Do not exceed 5.5 oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 09B.

Malathion 5EC (malathion) | Use 5EC formulations at 1.5 pts. per acre and 57EC formulations at 2.4 pts. per acre. Do not exceed 2 applications per season. Allow 7 days between applications. REI: 24-hour. REI: 12-hour. PHI: 7-day. IRAC 01B.

Movento (2SC) (spirotetramat) | 4-5 fl. oz. per acre. Must be tank-mixed with an adjuvant with spreading and penetrating properties. Allow 7 days between applications. Do not exceed 10.0 fl. oz. per acre per season. REI: 24-hour. PHI: 3-day. IRAC 23.

Mustang Maxx (0.8) (zeta-cypermethrin) | 2.24-4.0 fl. oz. per acre. Allow 7 days between applications. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Nuprid 2SC (imidacloprid) | 10-24 fl. oz. per acre. Apply as a soil treatment. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Orthene 97 (S) (acephate) | 8-16 oz. per acre. Allow 3 days between applications of 8 oz. per acre, and 7 days between applications of over 16 oz per acre. Do not exceed 34 oz. per acre per season. REI: 24-hour. PHI: 21-day. IRAC 01B.

Perm-Up 25DF (permethrin) | Use 25W, 25WP or 25DF formulations at 6.4-12.8 oz. per acre and do not exceed 64 oz. per acre per season. Use 3.2EC formulations at 2-8 fl. oz. per acre and do not exceed 40 fl. oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Sivanto 200 (1.67SL) (flupyradifurone) | 10.5-12.0 fl. oz. per acre. Can be applied as a foliar spray or soil treatment. See label for application methods. REI: 4-hour. PHI: 1-day. IRAC 04D.

Torac (1.29SC) (tolfenpyrad) | 17-21 fl. oz. per acre. Do not apply until 14 days after transplanting. Do not exceed 42 fl. oz. per crop cycle. REI: 12-hour. PHI: 1-day. IRAC 21A, FRAC 39.

Verimark (1.67SC) (cyantraniliprole) | 6.75-13.5 fl. oz. per acre. Apply as a soil treatment. Do not exceed 30.6 fl. oz. per acre per season. REI: 4-hour. PHI: 0-day. IRAC 28.

Voliam Flexi (WDG) (thiamethoxam, chlorantraniliprole) | 4-7 oz. per acre. Do not exceed a total of 14 oz. per acre per growing season. Minimum interval between applications is 7 days. REI: 12-hour. PHI: 7-day. IRAC 04A, IRAC 28.

Carrot Weevil Beetle

Non-Pesticide

Use crop rotation to reduce buildup of carrot weevil populations. Disk crop residue at the end of the growing season to eliminate food resources and reduce overwintering survival of life stages remaining in the field. Prior to transplanting, use carrot-baited monitoring traps to determine level of carrot weevil pressure in the field. Begin insecticide applications in the spring when plants have 3-true leaves (celery petioles) and direct applications at the base of the plant where adult weevils are active.

Pesticide

Admire Pro (4.6SC) (imidacloprid) | 4.4-10.5 fl. oz. per acre. Apply as a transplant drench or other soil treatment at planting to target larvae as they hatch. Do not exceed 10.5 fl. oz. per acre per season. REI: 12-hour. IRAC 04A.

Baythroid XL (1EC) (beta-cyfluthrin) | 2.4-3.2 fl. oz. per acre. Allow 7 days between applications. Do not exceed 12.8 fl. oz. per acre per season. REI: 12-hour. IRAC 03A. *RUP.*

Exirel (0.83SE) (cyantraniliprole) | 7-13.5 fl. oz. per acre. Use an effective adjuvant for best performance. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. IRAC 28.

Malathion 5EC (malathion) | Use 5EC formulations at 1.5 pts. per acre and 57EC formulations at 2.4 pts. per acre. Do not exceed 2 applications per season. Allow 7 days between applications. REI: 24-hour. REI: 12-hour. PHI: 7-day. IRAC 01B.

Mustang Maxx (0.8) (zeta-cypermethrin) | 3.2-4.0 fl. oz. per acre. Allow 7 days between applications. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. IRAC 03A. *RUP.*

Verimark (1.67SC) (cyantraniliprole) | 5.0-13.5 fl. oz. per acre. For armyworm and looper caterpillars and carrot weevil beetles. Apply as a soil treatment at-plant. Do not exceed 30.6 fl. oz. per acre per season. REI: 4-hour. PHI: 0-day. IRAC 28.

Vydate L (2WSL) (oxamyl) | 4 pts. per acre. *Michigan and Ohio only.* Apply as a soil-directed spray with at least 20 gals. water per acre, incorporated 2-4 inches deep by water or mechanical means. Allow 14 days between applications. Do not exceed 5 total applications, or 24 pts. per acre per season. REI: 48-hour. PHI: 21-day. IRAC 01A. *RUP.*

Caterpillars

There are many caterpillar pests of celery, including cabbageworms, diamond back moth caterpillars, earworms, corn borers, cutworms, loopers, and armyworms. Always check the label for the specific list of caterpillars that the product can be used on.

Apply preventative treatments within 4 weeks of harvest. Treat as needed before that.

Pesticide

Avaunt (30WDG) (indoxacarb) | 3.5 oz. per acre. For armyworms, and loopers. Allow 3 days between applications. Do not exceed 56 oz. per acre per season. REI: 12-hour. PHI: 3-day. IRAC 22.

Baythroid XL (1EC) (beta-cyfluthrin) | 0.8-3.2 fl. oz. per acre. For armyworms, cutworms, and loopers. Use high rate for armyworms and target 1st and 2nd instar caterpillars. Allow 7 days between applications. Do not exceed 12.8 fl. oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 03A. *RUP.*

Brigade 2EC (bifenthrin) | For armyworms, cutworms, and loopers. Use 2EC formulations at 2.1-6.4 fl. oz. per acre and do not exceed 32 fl. oz. per acre per season. Use 10DF, 10WP, or 10WSB formulations at 5.3-16 oz. per acre and do not exceed 80 oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 7-day. IRAC 03A. *RUP.*

Bt (Bacillus thuringiensis) products for caterpillars (Bacillus thuringiensis aizawai strain ABTS-1857, Bacillus thuringiensis aizawai strain GC-91, Bacillus thuringiensis kurstaki strain ABTS-351, Bacillus thuringiensis kurstaki strain EVB-113-19, Bacillus thuringiensis kurstaki strain SA-11) | For armyworms, cutworms, and loopers. Various Bt products are available for control of young caterpillars (Agree, Biobit, Dipel, Javelin, etc.) Different Bt subspecies have different control properties. Check labels for rates, timing of application and required safety equipment. REI: 4-hour. PHI: 0-day. IRAC 11A.

Confirm 2F (tebufenozide) | 6-8 fl. oz. per acre. For armyworms, and loopers. Do not exceed 40 fl. oz. per acre per crop. REI: 4-hour. PHI: 7-day. IRAC 18.

Coragen (1.67SC) (chlorantraniliprole) | 3.5-7.5 fl. oz. per acre. For armyworms, and loopers. Can be applied as a foliar spray or soil treatment. Allow 3 days between foliar applications and 10 days between soil applications. Do not exceed 15.4 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 28.

Durivo (SC) (thiamethoxam, chlorantraniliprole) | 10-13 fl. oz. per acre. For armyworms, and loopers. Apply as a soil treatment. Do not exceed 13 fl. oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A, IRAC 28.

Entrust SC (2) (spinosad) | For armyworms, and loopers. Use 2SC formulations at 1.5-8.0 fl. oz. per acre and do not exceed 29 fl. oz. per acre per season. Use 80WP formulations at 0.5-2.5 oz. per acre and do not exceed 9 oz. per acre per season. Allow 4 days between applications. REI: 4-hour. PHI: 1-day. IRAC 05. *OMRI-listed.*

Exirel (0.83SE) (cyantraniliprole) | 7.0-17.0 oz. per acre. For armyworms, and loopers. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 28.

Intrepid 2F (methoxyfenozide) | 4-10 oz. per acre. For armyworms, and loopers. Use 4-8 fl. oz. per acre in early season, and 8-10 fl. oz. per acre on mid and late season. Do not exceed 64 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 18.

Lannate LV (2.4L) (methomyl) | 1.5 - 3.0 pts. per acre. For armyworms, cutworms, and loopers. Do not exceed 21 pts. per acre per season. REI: 48-hour. PHI: 7-day. IRAC 01A. *RUP.*

Mustang Maxx (0.8) (zeta-cypermethrin) | 2.24-4.0 fl. oz. per acre. For armyworms, cutworms, and loopers. Allow 7 days between applications. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Perm-Up 25DF (permethrin) | For armyworms, and loopers. Use 25W, 25WP or 25DF formulations at 6.4-12.8 oz. per acre and do not exceed 64 oz. per acre per season. Use 3.2EC

formulations at 2-8 fl. oz. per acre and do not exceed 40 fl. oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Proclaim (5SG) (emamectin benzoate) | 2.4-4.8 oz. per acre. For armyworms, and loopers. Allow 7 days between applications. Do not exceed 28.8 oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 06. *RUP.*

Radiant 1SC (spinetoram) | 5-10 fl. oz. per acre. For armyworms, and loopers. Allow 4 days between applications. Do not exceed 34 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 05.

Sevin XLR Plus (4SC) (carbaryl) | 1-2 qts. per acre. For armyworms. Do not exceed 6 qts. per acre per season. REI: 12-hour. PHI: 14-day. IRAC 01A.

Verimark (1.67SC) (cyantraniliprole) | 5.0-13.5 fl. oz. per acre. For armyworm and looper caterpillars and carrot weevil beetles. Apply as a soil treatment at-plant. Do not exceed 30.6 fl. oz. per acre per season. REI: 4-hour. PHI: 0-day. IRAC 28.

Leafhoppers

Treat when there are more than 14 leafhoppers per 100 sweeps.

Repeat as needed, depending on number of leafhoppers.

Pesticide

Actara (25WDG) (thiamethoxam) | 1.5-3.0 oz. per acre. Apply as a foliar treatment. Allow 7 days between applications. Do not exceed 11 oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 04A.

Admire Pro (4.6SC) (imidacloprid) | 4.4-10.5 fl. oz. per acre. Do not exceed 10.5 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Belay (2.13SC) (clothianidin) | *Soil applications*: 9-12 fl. oz. per acre. *Foliar applications*: 3-4 fl. oz. per acre. Do not exceed 12 fl. oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 04A.

Brigade 2EC (bifenthrin) | Use 2EC formulations at 2.1-6.4 fl. oz. per acre and do not exceed 32 fl. oz. per acre per season. Use 10DF, 10WP, or 10WSB formulations at 5.3-16 oz. per acre and do not exceed 80 oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 7-day. IRAC 03A. *RUP.*

Durivo (SC) (thiamethoxam, chlorantraniliprole) | 10-13 fl. oz. per acre. Apply as a soil treatment. Do not exceed 13 fl. oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A, IRAC 28.

Lannate LV (2.4L) (methomyl) | 1.5 - 3.0 pts. per acre. Do not exceed 21 pts. per acre per season REI: 48-hour. PHI: 7-day. IRAC 01A. *RUP.*

Mustang Maxx (0.8) (zeta-cypermethrin) | 2.24-4.0 fl. oz. per acre. Allow 7 days between applications. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Nuprid 2SC (imidacloprid) | 10-24 fl. oz. per acre. Apply as a soil treatment. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Perm-Up 25DF (permethrin) | Use 25W, 25WP or 25DF formulations at 6.4-12.8 oz. per acre and do not exceed 64 oz. per acre per season. Use 3.2EC formulations at 2-8 fl. oz. per acre and do not exceed 40 fl. oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Platinum 2SC (thiamethoxam) | Use 2SC formulations as a soil treatment at 5-11 fl. oz. per acre and do not exceed 11 fl. oz. per acre per season. Use 75SG formulations as a soil treatment at 1.66-3.67 oz. per acre and do not exceed 3.67 oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A.

Scorpion 35SL (3.24) (dinotefuran) | *Soil treatment*: Use Scorpion 35SL at 9.0-10.5 oz. per acre, or Venom 70SG at 5.0-5.5 oz. per acre. *Foliar treatment*: Use Scorpion 25SL at 2.0-5.25 oz. per acre, or Venom 70SG at 1-3 oz. per acre. Allow 7 days between applications. REI: 12-hour. PHI: 21-day as soil application, 7-day as foliar application IRAC 04A.

Sevin XLR Plus (4SC) (carbaryl) | 1-2 qts. per acre. Do not exceed 6 qts. per acre per season. REI: 12-hour. PHI: 14-day. IRAC 01A.

Sivanto 200 (1.67SL) (flupyradifurone) | 7.0-10.5 fl. oz. per acre. Can be applied as a foliar spray or soil treatment. See label for application methods. REI: 4-hour. PHI: 1-day. IRAC 04D.

Torac (1.29SC) (tolfenpyrad) | 14-21 fl. oz. per acre. Do not apply until 14 days after transplanting. Do not exceed 42 fl. oz. per crop cycle. REI: 12-hour. PHI: 1-day. IRAC 21A, FRAC 39.

Voliam Flexi (WDG) (thiamethoxam, chlorantraniliprole) | 4-7 oz. per acre. Do not exceed a total of 14 oz. per acre per growing season. Minimum interval between applications is 7 days. REI: 12-hour. PHI: 7-day. IRAC 04A, IRAC 28.

Leafminers

Treat as soon as visible mines appear and repeat every 7 days as needed.

Pesticide

Actara (25WDG) (thiamethoxam) | 1.5-3.0 oz. per acre. Apply as a foliar treatment. Allow 7 days between applications. Do not exceed 11 oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 04A.

Admire Pro (4.6SC) (imidacloprid) | 4.4-10.5 fl. oz. per acre. Do not exceed 10.5 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Agri-Mek SC (0.7) (abamectin) | 1.75-3.5 fl. oz. per acre. Use with a nonionic surfactant. Allow 7 days between applications. Do not exceed 10.5 fl. oz. per acre. REI: 12-hour. PHI: 7-day. IRAC 06. *RUP.*

Baythroid XL (1EC) (beta-cyfluthrin) | 0.8-3.2 fl. oz. per acre. Allow 7 days between applications. Do not exceed 12.8 fl. oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 03A. *RUP.*

Coragen (1.67SC) (chlorantraniliprole) | 5.0-7.5 fl. oz. per acre. Can be applied as a foliar spray or soil treatment. See label for application methods. Allow 3 days between foliar applications. Do not exceed 15.4 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 28.

Dimethoate 4EC (dimethoate) | Use 4EC, LV-4, and 400 EC formulations at 1 pt. per acre and do not exceed 3 pts. per acre per season. REI: 48-hour. PHI: 7-day. IRAC 01B.

Durivo (SC) (thiamethoxam, chlorantraniliprole) | 10-13 fl. oz. per acre. Apply as a soil treatment. Do not exceed 13 fl. oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A, IRAC 28.

Entrust SC (2) (spinosad) | Use 2SC formulations at 6-10 fl. oz. per acre and do not exceed 29 fl. oz. per acre per season. Use 80WP formulations at 2-3 oz. per acre and do not exceed 9 oz. per acre per season. Allow 4 days between applications. REI: 4-hour. PHI: 1-day. IRAC 05. *OMRI-listed.*

Exirel (0.83SE) (cyantraniliprole) | 13.5-20.5 fl. oz. per acre. Use an effective adjuvant. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 28.

Platinum 2SC (thiamethoxam) | Use 2SC formulations as a soil treatment at 5-11 fl. oz. per acre and do not exceed 11 fl. oz. per acre per season. Use 75SG formulations as a soil treatment at 1.66-3.67 oz. per acre and do not exceed 3.67 oz. per acre per season. REI: 12-hour. PHI: 30-day. IRAC 04A.

Radiant 1SC (spinetoram) | 6-10 fl. oz. per acre. Allow 4 days between applications. Do not exceed 34 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 05.

Scorpion 35SL (3.24) (dinotefuran) | *Soil treatment*: Use Scorpion 35SL at 9.0-10.5 oz. per acre, or Venom 70SG at 5.0-5.5 oz. per acre. *Foliar treatment*: Use Scorpion 25SL at 2.0-5.25 oz. per acre, or Venom 70SG at 1-3 oz. per acre. Allow 7 days between applications. REI: 12-hour. PHI: 21-day as soil application, 7-day as foliar application IRAC 04A.

Trigard (75WP) (cyromazine) | 2.66 oz. per acre. Allow 7 days between applications. Do not exceed 6 applications per crop. REI: 12-hour. PHI: 7-day. IRAC 17.

Verimark (1.67SC) (cyantraniliprole) | 6.75-13.5 fl. oz. per acre. Apply as a soil treatment. Do not exceed 30.6 fl. oz. per acre per season. REI: 4-hour. PHI: 0-day. IRAC 28.

Mites

Pesticide

Admire Pro (4.6SC) (imidacloprid) | 4.4-10.5 fl. oz. per acre. Do not exceed 10.5 fl. oz. per acre per season. REI: 12-hour. PHI: 45-day. IRAC 04A.

Agri-Mek SC (0.7) (abamectin) | 1.75-3.5 fl. oz. per acre. Use with a nonionic surfactant. Allow 7 days between applications. Do not exceed 10.5 fl. oz. per acre. REI: 12-hour. PHI: 7-day. IRAC 06. *RUP.*

Dimethoate 4EC (dimethoate) | Use 4EC, LV-4, and 400 EC formulations at 1 pt. per acre and do not exceed 3 pts. per acre per season. REI: 48-hour. PHI: 7-day. IRAC 01B.

Malathion 5EC (malathion) | Use 5EC formulations at 1.5 pts. per acre and 57EC formulations at 2.4 pts. per acre. Do not exceed 2 applications per season. Allow 7 days between applications. REI: 24-hour. REI: 12-hour. PHI: 7-day. IRAC 01B.

Oberon 2SC (spiromesifen) | 7.0-8.5 fl. oz. per acre. *For the treatment of Two-Spotted Spider Mites in Michigan only. MI 24c exp. 08/23/22.* Allow 7 days between applications. Do not exceed 25.5 fl. oz. per acre per season. REI: 12-hour. PHI: 7-day. IRAC 23.

Verimark (1.67SC) (cyantraniliprole) | 6.75-13.5 fl. oz. per acre. Apply as a soil treatment. Do not exceed 30.6 fl. oz. per acre per season. REI: 4-hour. PHI: 0-day. IRAC 28.

Slugs

Occasionally, slugs and snails seriously damage seedlings; tender, low-growing leafy vegetables; or ripening fruit that are on the ground. Slug and snail feeding damage (hollowed-out areas) can be found anywhere on fruit, but is usually

concentrated near the stem. Slugs leave behind telltale slime trails (silvery trails) on the surfaces of fruit or leaves. Slugs and snails are active at night or cloudy days.

Slugs and snails favor continuously moist soil and organic mulch. They lay eggs in groups in moist soil, and overwinter in organic mulch. Slugs can complete their entire life cycle in a field.

Prevent infestation by scattering bait products to the soil surface around the perimeter of the planting. Make a rescue treatment by scattering the bait products on the soil as a band between rows. Apply in evening after a rain or irrigation. Avoid contact with edible product.

Non-Pesticide

Slug hiding places should be eliminated - such as, boards, stones, weedy areas, or heavy mulch - so the soil can become warm and dry. Raised beds that can dry out more readily than flat beds reduce slug problems. Using black plastic mulch discourages slug build-up because it causes the soil to heat up and dry out.

Pesticide

Deadline M-Ps (4P) (metaldehyde) | 25 lbs. per acre. Scatter bait around the perimeter of plantings or between rows. Apply in evening after a rain or irrigation. Avoid contact with edible product. Allow 21 days between applications. Maximum 4 applications per season. REI: 12-hour. PHI: 1-day. IRAC UN.

Sluggo 1B (iron phosphate) | 20-44 lbs. per acre, or at 05.-1 lb. per square ft. Prevent infestation by scattering bait products to the soil surface around the perimeter of the planting. Make a rescue treatment by scattering the bait products on the soil as a band between rows. Apply in evening after a rain or irrigation. REI: 0-hour. PHI: 0-day. IRAC UN. *OMRI-listed.*

Tarnished Plant Bug

Treat if there are 2-4 tarnished plant bugs per 20 plants.

Pesticide

Baythroid XL (1EC) (beta-cyfluthrin) | 0.8-3.2 fl. oz. per acre. Allow 7 days between applications. Do not exceed 12.8 fl. oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 03A. *RUP.*

Beleaf (50SG) (flonicamid) | 2-2.8 oz. per acre. Allow 7 days between applications. Do not exceed 8.4 oz. per acre per season. REI: 12-hour. PHI: 0-day. IRAC 29.

Mustang Maxx (0.8) (zeta-cypermethrin) | 2.24-4.0 fl. oz. per acre. Allow 7 days between applications. Do not exceed 24 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 03A. *RUP.*

Sevin XLR Plus (4SC) (carbaryl) | 1-2 qts. per acre. Do not exceed 6 qts. per acre per season. REI: 12-hour. PHI: 14-day. IRAC 01A.

Torac (1.29SC) (tolfenpyrad) | 17-21 fl. oz. per acre. Do not apply until 14 days after transplanting. Do not exceed 42 fl. oz. per crop cycle. REI: 12-hour. PHI: 1-day. IRAC 21A, FRAC 39.

Thrips

Pesticide

Closer SC (2) (sulfoxaflor) | 4.25-5.75 fl. oz. per acre. *Suppression only.* Use high rate when pest pressure is heavy. Do not exceed 17 fl. oz. per acre per year. Allow 7 days between applications. Do not apply within 3 days of harvest. REI: 12-hour. PHI: 3-day. IRAC 04C.

Exirel (0.83SE) (cyantraniliprole) | 13.5-20.5 fl. oz. per acre. Use an effective adjuvant. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 28.

Radiant 1SC (spinetoram) | 6-10 fl. oz. per acre. Allow 4 days between applications. Do not exceed 34 fl. oz. per acre per season. REI: 4-hour. PHI: 1-day. IRAC 05.

Torac (1.29SC) (tolfenpyrad) | 21 fl. oz. per acre. Do not apply until 14 days after transplanting. Do not exceed 42 fl. oz. per crop cycle. REI: 12-hour. PHI: 1-day. IRAC 21A, FRAC 39.

Whiteflies

Pesticide

Assail 30SG (acetamiprid) | Use 30SG formulations at 2-4 oz. per acre and do not exceed 20 oz. per acre per season. Use 70WP formulations at 0.8-1.7 oz. per acre and do not exceed 8.5 oz. per acre per season. Allow 7 days between applications. REI: 12-hour. PHI: 7-day. IRAC 04A.

Closer SC (2) (sulfoxaflor) | 5.75 fl. oz. per acre. *Suppression only.* Do not exceed 17 fl. oz. per acre per year. Allow 7 days between applications. REI: 12-hour. PHI: 3-day. IRAC 04C.

Exirel (0.83SE) (cyantraniliprole) | 13.5-20.5 fl. oz. per acre. Use an effective adjuvant. Allow 5 days between applications. Do not exceed 61.7 fl. oz. per acre per season. REI: 12-hour. PHI: 1-day. IRAC 28.

Movento (2SC) (spirotetramat) | 4-5 fl. oz. per acre. Must be tank-mixed with an adjuvant with spreading and penetrating properties. Allow 7 days between applications. Do not exceed 10.0 fl. oz. per acre per season. REI: 24-hour. PHI: 3-day. IRAC 23.

Sivanto 200 (1.67SL) (flupyradifurone) | 10.5-14.0 fl. oz. per acre. Can be applied as a foliar spray or soil treatment. See label for application methods. REI: 4-hour. PHI: 1-day. IRAC 04D.

Voliam Flexi (WDG) (thiamethoxam, chlorantraniliprole) | 4-7 oz. per acre. Do not exceed a total of 14 oz. per acre per growing season. Minimum interval between applications is 7 days. REI: 12-hour. PHI: 7-day. IRAC 04A, IRAC 28.

Celery – Weeds

Reviewed by Stephen Meyers, Ben Phillips – Sept 2021

Recommended Controls

All Weeds

Celery is nearly always started as transplants. Early season plantings in cool soils are at greater risk of herbicide injury. There are several herbicides labeled for the control of weeds preemergence, applied before celery is transplanted, or directed between the rows only after transplanting.

For specific weeds controlled by each herbicide, check the Relative Effectiveness of Herbicides for Vegetable Crops table.

Rates provided in the recommendations below are given for overall coverage. For a banded treatment, reduce amounts according to the portion of acre treated.

Non-Pesticide

Weed control in celery often relies heavily on cultivation and hand-weeding for full season weed control. These operations are most efficient when planting arrangement is designed with weed control in mind and is designed to work with available weed control equipment. Specialized weeding equipment for celery includes basket weeders, narrow-bladed hoes, finger weeders, and others. A stale seedbed can be prepared prior to transplanting with flame weeding or very shallow cultivation to control emerged weeds, instead of herbicides.

Pesticide

Caparol 4L (prometryn) POST PRE | 1-2 qts. per acre. Make 1 or 2 applications 2-6 weeks after transplanting but before weeds are 2 inches tall. Do not exceed 2 qts. per acre per year. REI: 12-hour. HRAC 05.

Chateau SW (51WDG) (flumioxazin) PRE | 3 oz. per acre. Apply before transplanting or 3-7 days after transplanting for control of many annual broadleaf weeds and grasses. Do not tank mix with other pesticides. REI: 12-hour. HRAC 14.

clethodim products (clethodim) POST | Use 2EC formulations at 6-8 fl. oz. per acre with 1 qt. of COC per 25 gals. of spray solution (1% v/v). Use Select Max at 9-16 fl. oz. per acre with 8 fl. oz. of NIS per 25 gals. of spray solution (0.25% v/v). Spray on actively growing grass. Wait at least 14 days between applications. Do not exceed 32 fl. oz. of 2EC formulations or 64 fl. oz. of Select Max per acre per season. REI: 24-hour. PHI: 30-day. HRAC 01.

Dual Magnum (7.62EC) (s-metolachlor) PRE | 1-2 pts. per acre. *Indiana, Michigan, and Minnesota only (MI 24c exp. 12/31/21. MN 24c exp. 12/31/25)*: apply before or immediately after transplanting. Will control annual grass and small-seeded broadleaf weeds and nutsedge. Use high rate on muck soils. Follow with 0.25-inch water within 7 days. REI: 24-hour. PHI: 62-day. HRAC 15.

glyphosate products (glyphosate) POST | 1.5-2.25 lbs. acid equivalent (ae) per acre. Use formulations containing 3 lbs. ae per gal. (4 lbs. isopropylamine salt per gal.) at 2-3 qts. per acre. Use formulations containing 4.5 lbs. ae per gal. (5 lbs. potassium salt per gal.) at 1.3-2 qts. per acre. Apply to emerged perennials before planting, or after harvest in the fall. See label for suggested application volume and adjuvants and rates for specific weeds. REI: 4-hour to 12-hour. PHI: 14-day. HRAC 9.

Lorox DF (50) (linuron) POST PRE | 1.5-2 lbs. per acre. Apply after transplants are established but before celery is 8 inches tall. Do not exceed 40 PSI pressure. Do not apply when temperatures exceed 85 F, and do not mix with wetting agents or other pesticides. REI: 24-hour to 8-day. PHI: 45-day. HRAC 05.

Poast (1.5EC) (sethoxydim) POST | 1-1.5 pts. per acre. Apply to actively growing grasses. Include 1 qt. COC

per acre. Do not exceed 3 pts. per acre per season. REI: 12-hour. PHI: 30-day. HRAC 01.

trifluralin products (trifluralin) PRE | 0.5-1 lb. a.i. per acre. Use 4EC formulations at 1-2 pts. per acre. Use 10G formulations at 5-10 lbs. per acre. Apply and incorporate 1-2 inches before, during, or immediately after planting. Use low rate on coarse soils with less than 2% organic matter. Not effective on muck or high organic matter soils. REI: 12-hour. HRAC 03.

Zidua (85WDG) (pyroxasulfone) PRE | 3.25 fl. oz. per acre of SC formulation. 2.0 oz. per acre of WG formulation. Use only on muck soil with greater than 20% organic matter. Apply to transplanted celery 1-6 days after transplanting. REI: 12-hour. HRAC 15.

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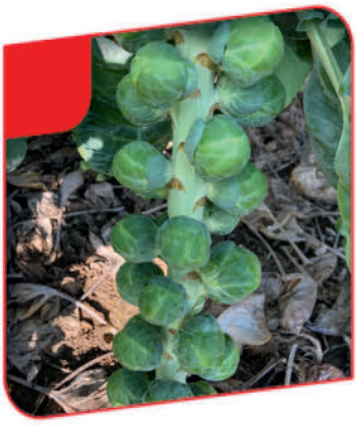
CONVERSION

87 Day Romaine x Leaf Lettuce. With blistered, medium-dark green leaves, Conversion is a cross between a romaine and a leaf lettuce. Savoyed leaves look like romaine and have solid ribs and uniform size. Upright and open growing habit, healthy plant with good heat tolerance and good field standability. The perfect sandwich lettuce!



SILVIA

98 Day Brussels Sprout. Silvia is a great choice for spaces. Compact plants grow 18"-24" tall. This early maturing variety can produce 45-50 sprouts per stalk.

GRENADE

60 Day Beet. Grenade is used where Rhizomania is a problem. It has the nicest shape and quality of Rhizomania resistant varieties. This is a new disease in north America, and quite common in Europe.

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