

Mint

Peppermint and Spearmint Varieties

Peppermint: Black Mitcham, Robert's Mitcham, Todd's Mitcham, and Murray Mitcham. The latter three varieties are more resistant to verticillium wilt.

Spearmint: Scotch Spearmint and Native Spearmint. These two spearmints have distinctly different oils.

Planting and Rotation

Mints are grown from dormant runners (stolons) dug from existing fields in the late fall or spring. Because verticillium wilt disease is an important problem (even with the more resistant varieties), growers should always use disease-free planting stock. Certified and disease-free stocks are available. Also, careful fall plowing of established stands is important for both winter protection and for reducing the incidence of mint rust and other foliar diseases. "Squirrely" mint, which occurs primarily on peppermint, is caused by the mint bud mite, *Tarsonemus pipermenthae*.

Although mints are perennials, stands should not be maintained longer than 3 or 4 years in a rotation program. Older stands may show serious build-ups of disease, insect, and weed problems.

Irrigation significantly increases oil yields both on muck and mineral soils, even in seasons with normal rainfall.

Fertilizing

For established mint, apply 120 to 150 pounds N per acre in split application (before emergence and before canopy closure). Potash and phosphorous should be maintained at 400 pounds K₂O per acre and 50 pounds P₂O₅ per acre.

Pesticide Use in Greenhouses

Before using any pesticide, always read the product label for mention of greenhouse restrictions. See Selected Information About Recommended Fungicides (page 79), Selected Information About Recommended Herbicides (page 69), and Selected Information About Recommended Insecticides (page 54).

Disease Control

Spearmint Rust, Septoria Leaf Spot

Recommended Products

Bravo®, **Echo**®, **Equus**®, and **Initiate**® are labeled for use at various rates. *Indiana only.* 80-day PHI.

Headline 2.09EC® or **Headline SC**® at 9-12 fl. oz. per acre. *Rust only.* 14-day PHI.

Propimax EC® at 4 fl. oz. per acre. *Rust only.* 90-day PHI.

Quadris® at 6.0-15.4 fl. oz. per acre. *Rust only.* 7-day PHI for processed mint.

Rally 40WSP® at 4-5 oz. per acre. *Rust only.* 30-day PHI.

Verticillium Wilt

Use wilt-resistant varieties of peppermint. Native spearmint is resistant.

Rotate plantings after no more than 3 or 4 years.

Weed Control

For specific weeds controlled by each herbicide, check Relative Effectiveness of Herbicides for Vegetable Crops (page 68).

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

Burndown or Directed/Shielded Application

Recommended Products

Glyphosate products as a spot treatment in a 1-2% solution to actively growing weeds. The sprayed mint crop will be killed. Not all glyphosate formulations are labeled for mint. Apply as a spot treatment to no more than 10% of any acreage but can reapply to the same area at 30-day intervals. Avoid any drift to nontarget crops. 7-day PHI.

Paraquat products at the following rates:

Gramoxone SL 2.0® at 2-3 pts. per acre. Do not exceed 3 pts. per acre.

Firestorm® at 1.3-2 pts. per acre. Do not exceed 2 pts. per acre.

Use 1 qt. of COC or 4-8 fl. oz. of NIS per 25 gals. of spray solution. Apply before crop begins to grow in spring. *RUP.*

Preemergence and Early Postemergence Broadleaves and Grasses

Recommended Products

Chateau SW[®] at 2-4 oz. per acre. Use NIS according to label instructions. Apply to established dormant mint. Tank-mix with paraquat (see paraquat label for rates). Adding a nitrogen source will increase activity. Do not apply to frozen ground. Has residual soil activity. Do not exceed 4 oz. per acre in a single application or more than 8 oz. per acre in a single growing season. Make no more than 1 sequential application of Chateau[®] within 60 days of first application. Applying to nondormant mint may result in unacceptable injury. 80-day PHI.

Sinbar 80WP[®] at 1-2 lbs. per acre, or 0.25-0.5 lb. per acre plus NIS or COC postemergence to the crop and small weeds. Apply before mint emerges. Do not exceed 2 lbs. per acre per season. 60-day PHI.

Preemergence Broadleaves and Grasses

Recommended Products

Command 3ME[®] at 1.3 pts. per acre. Apply in spring before mint starts to grow. Do not apply to emerged mint. Do not exceed 1 application per season. Some whitening of tissue may occur as mint emerges. 84-day PHI.

Devrinol 50DF-XT[®] at 4-8 lbs. per acre. *New plantings:* Apply soon after planting. *Established plantings:* Apply before emergence.

Prowl H2O[®] at 1.5-4 pts. per acre. *Established mint only.* Use low rate on coarse soils. Apply to dormant mint before mint and weeds start to grow. 90-day PHI.

Preemergence Broadleaves

Recommended Products

Goal 2XL[®] at 2-3 qts. per acre in 20-40 gals. of water per acre or **GoalTender 4SC**[®] at 1 pt. per acre. *Indiana and Michigan only. Not for use on mineral or black sand soils.* Use 8 fl. oz. of NIS per 25 gals. of spray solution if emerged weeds are present. Apply to dormant spearmint and peppermint on muck soil (greater than 20% organic matter) before weeds are 4 inches tall. Application to emerged mint will result in severe injury.

Spartan 4F[®] *New plantings:* 3.3 to 9 fl. oz. per acre.

Apply after planting before weeds and mint emerge. *Established plantings:* 4.5 to 12 fl. oz. per acre. Apply to established mint when it is dormant — in the fall after postharvest cultivation, and/or in the spring after cultivation. For new or established plantings use lower rates on coarse soils with low organic matter. Rainfall or irrigation is required to move herbicide into the soil. Application may injure crop as mint emerges. Application to emerged mint will result in severe injury. Do not exceed 12 fl. oz. per 12-month period.

Postemergence Broadleaves

Recommended Products

Bentazon products at 0.5-1 lb. a.i. per acre. Use 4L formulations at 1-2 pts. per acre. Apply after mint and weeds have emerged. To control yellow nutsedge and Canada thistle, repeat application 7-10 days later. Crop oil will enhance activity. Do not exceed 4 pts. per acre per season.

Moxy 2E[®] at 1-1.5 pts. per acre in at least 10 gals. water per acre, or **Buctril 4EC**[®] at 8-12 fl. oz. per acre in at least 10 gals. water per acre. Apply before weeds have more than 4-6 leaves, and only on established mint that has been harvested at least one year prior to application. Buctril[®] may cause temporary stunting and chlorosis of mint. Do not apply to mint growing under stressful conditions, or when air temperatures are, or are expected to be, more than 70°F within 5 days of application. 70-day PHI.

Sinbar 80WP[®] at 0.5-1 lb. per acre. Apply up to 1 lb. product plus 1 pt. NIS per acre. Do not exceed 2 lbs. of product (pre and post) per acre per year. Discontinue use 1 year before rotating to other crops. 60-day PHI.

Stinger 3EC[®] at 0.33-1 pt. per acre. Use 4 fl. oz. of NIS per 25 gals. of spray solution. Apply up to 0.5 pt. in spring or up to 1 pt. in fall. Controls mainly composites and nightshade. To control Canada thistle in spring, apply before bud stage. Do not use mint straw, hay, or spent hay for compost or mulch and do not dispose of on land to be rotated to broadleaf crops due to herbicide remaining in mint hay or straw that will injure broadleaf plants. Do not exceed 1 pt. per acre per growing season. 45-day PHI.

Thistrol® at 1-2 pts. per acre. Apply in spring after mint emerges to suppress broadleaf weeds, or apply in fall to control winter annuals. May injure mint. Oil yields may be reduced if mint is more than 6 inches tall. Bindweed suppression is best with spring application when weeds are 6-8 inches long. 40-day PHI.

Postemergence Grasses

Recommended Products

Assure II® at 8-12 oz. per acre. Use 1 qt. of COC per acre. Apply to actively growing grass. Do not exceed 2 applications or 30 fl. oz. per acre per season. 30-day PHI.

Poast 1.5E® at 1-1.5 pts. per acre. Use 1 qt. of COC per acre. Spray on actively growing grass. Do not exceed 2 applications per season. 20-day PHI.

Select Max® at 12-32 fl. oz. per acre, or **Select 2EC**® at 6-16 fl. oz. per acre. Use 1 qt. of COC per 25 gals. of spray solution (1% v/v). Spray on actively growing grass. Use at least 16 fl. oz. Select Max®, or 8 fl. oz. of Select 2EC® on established mint. Wait at least 14 days between applications. 21-day PHI.

Insect Control

Cutworms, Loopers

Recommended Products

BP Various *Bacillus thuringiensis* formulations (Agree®, Biobit®, Dipel®, Javelin®, Lepinox®, etc.) are available. Follow label rates. 0-day PHI.

Avaunt® (30WDG) at 3.5 oz. per acre. Do not exceed 14 oz. per acre per season. 7-day PHI.

Coragen® (1.67S) at 3.5-7.5 fl. oz. per acre. Do not exceed 4 applications per acre per crop. Must wait at least 14 days between applications. 3-day PHI.

ENTRUST® (2SC) at 4-10 fl. oz. per acre. Do not exceed 29 fl. oz. per acre per crop. Must wait at least 4 days between treatments. 7-day PHI.

Intrepid® (2F) at 10-16 fl. oz. per acre. Do not exceed 64 fl. oz. per acre per year. 14-day PHI.

Lannate LV® (2.4L) at 3 pts. per acre. Do not exceed 4 applications per year and 6 pts. per acre per crop. 14-day PHI. *RUP*.

Lorsban Advanced® (3.755L) at 2-4 pts. per acre. Use lower rate when cutworm larvae are less than 0.75 inch long. Only 1 application per growing season. 90-day PHI. *RUP*.

Orthene 97® (97S) at 1 lb. per acre. Do not exceed 2 applications per year and 2 1/8 lbs. per acre per season. Must wait at least 7 days between applications. 14-day PHI.

Radiant SC® (1SC) at 4-12 fl. oz. per acre. Do not exceed 4 applications per year or 39 fl. oz. per acre per season. Must wait 4 days between treatments. 7-day PHI.

Flea Beetles

Recommended Products

Actara® (25WDG) at 1.5-3.0 oz. per acre. Do not exceed 12 oz. per acre per season. Must wait at least 14 days between treatments. See pollinator precautions. 7-day PHI.

Lannate LV® (2.4L) at 2.25-3 pts. per acre. For best results, apply immediately after harvest on stubble. Do not exceed 4 applications per crop and 6 pts. per acre per crop. 14-day PHI. *RUP*.

Malathion 5EC® at 1.5 pts. per acre. For best results, apply immediately after harvest on stubble. 7-day PHI.

Mites

Recommended Products

Acramite 50WS® at 0.75-1.5 lbs. per acre. Do not exceed 1 application per season. 7-day PHI.

Agri-Mek 0.15EC® at 8-12 fl. oz. per acre. Do not exceed 36 fl. oz. per acre per season. 28-day PHI. *RUP*.

Dicofol 4E® at 1.75-2.5 pts. per acre. Do not exceed 1 application per season. 32-day REI. 30-day PHI.

Portal® (0.4L) at 1-2 pt. per acre. Do not exceed 2 applications per season. Allow 7 days between applications. 7-day PHI.

Zeal® (72WSP) at 2-4 oz. per acre. Do not exceed 1 application per season. 7-day PHI.

BP This is a biopesticide. See page 37 for details.

ENTRUST May be acceptable for use in certified organic production. Check with your certifier before use.