

Delaware Cooperative Extension



This is a section from the

2024/2025

Mid-Atlantic Commercial Vegetable Production Recommendations

The recommendations are **NOT** for home gardener use.

The full recommendations are available online at:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/commercial-crops/vegetable-crops/midatlantic-vegetable-recommendations/>

Printed copies of the recommendations are available for purchase at the New Castle, Kent and Sussex County Extension Offices in Delaware.

This publication will be revised biennially. In January 2025, a Critical Update with important updates for this publication will be communicated through the above website.

These recommendations were prepared and reviewed by individuals from Cornell University, University of Delaware, Delaware State University, University of Maryland, Penn State, Rutgers University, Virginia Tech, and West Virginia University with the purpose of providing up to date information for commercial vegetable growers in the Mid-Atlantic states of **Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia.**

Disclaimer

- The label is a legally-binding contract between the pesticide user and the manufacturer.
- The user **MUST** follow all rates and restrictions as per label directions.
- The use of any pesticide inconsistent with the label directions is a violation of Federal law.

2024/2025
Mid-Atlantic Commercial Vegetable
Production Recommendations



If you are having a **medical emergency** after using pesticides, always **call 911** immediately.



In Case of an Accident

- Remove the person from exposure
- Get away from the treated or contaminated area immediately
- Remove contaminated clothing
- Wash with soap and clean water
- Call a physician and/or the National Poison Control Center (1-800-222-1222).
Your call will be routed to your State Poison Control Center.
- Have the pesticide label with you!
- Be prepared to give the EPA registration number to the responding center/agency

Preface

NOT TO BE USED BY HOME GARDENERS

This copy of the 2024/2025 Mid-Atlantic Commercial Vegetable Production Recommendations replaces all previous editions of the Commercial Vegetable Production Recommendations published individually for Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia. Information presented in this publication is based on research results from the University of Delaware, the University of Maryland, Rutgers - The State University of New Jersey, The Pennsylvania State University, Virginia Polytechnic Institute and State University, West Virginia University, Delaware State University, Cornell University, the U.S. Department of Agriculture, and other institutions, combined with industry and grower knowledge and experience.

This publication will be revised biennially. In January 2025, a Critical Update with important updates for this publication will be communicated through local Extension Agents and Vegetable Specialists. The editors welcome constructive criticism and suggestions from growers and industry personnel who may wish to help improve future editions of this publication.

These recommendations are intended for the commercial vegetable grower who has to make numerous managerial decisions. Although the proper choices of variety, pesticides, equipment, irrigation, fertilizer, and cultural practices are the individual vegetable grower's responsibility, it is intended that these recommendations will facilitate decision-making. Recommended planting dates will vary across the six-state region. Local weather conditions, grower experience, and variety may facilitate successful harvest on crops planted outside the planting dates listed in this guide. This can be evaluated in consultation with the local agents and state specialists. Government agencies and other organizations administering crop insurance programs or other support programs should contact local Extension agents and/or vegetable specialists for guidance.

Disclaimer

- The label is a legally-binding contract between the user and the manufacturer.
- The user **MUST** follow all rates and restrictions as per label directions.
- The use of any pesticide inconsistent with the label directions is a violation of Federal law.

Pesticide User Responsibility

Always follow the label and use pesticides safely. For Special Local Needs Label 24(c) registrations or Section 18 exemptions, do not use the material without a copy of the special label or written instructions from your Extension Agent or another recognized authority. **The user is always responsible for the proper use of pesticides, residues on crops, storage, and disposal, as well as for damage caused by drift.**

State and federal pesticide regulations are constantly under revision. Be sure to determine if such changes apply to your situation. Using pesticides inconsistent with label directions is illegal.

Days Between Last Application and Harvest

The minimum number of days between the last application and harvest (**PHI**, Pre-Harvest Interval, in days) and reentry information (**REI**, Restricted Entry Interval, in hours) are listed in the herbicide, insecticide and fungicide recommendation tables in chapter F Commodity Recommendations. Always follow the label to avoid the occurrence of deleterious chemical residues on harvested crops.

Trade or Brand Names

The trade or brand names given herein are supplied with the understanding that no discrimination is intended, and no endorsement is implied. Furthermore, in some instances the same compound may be sold under different trade names, which may vary as to label clearances. For the convenience of our users, both product names and active ingredients are provided, and any product name omissions are unintended.

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State Extension Information

DELAWARE

University of Delaware

University of Delaware Cooperative Extension: <https://www.udel.edu/canr/cooperative-extension/>

Mid-Atlantic Commercial Vegetable Production Recommendations: publication EB137

Vegetable Program Trial Reports, Publications, and Budgets:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/commercial-crops/vegetable-crops/>

Weekly Crop Update Newsletter: <https://sites.udel.edu/weeklycropupdate/>

Delaware Insect Pest Management, Trial Reports, Insect Trapping Program:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/>

UD Plant Diagnostic Clinic: <https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/plant-diagnostic-clinic/>

University of Delaware Weed Science:

<https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/weed-science/>

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Maryland Vegetables: <https://extension.umd.edu/mdvegetables>

University of Maryland Plant Diagnostic Lab: <https://extension.umd.edu/plantdiagnosticlab>

University of Maryland Fruit and Vegetable News: <https://extension.umd.edu/programs/agriculture-food-systems/program-areas/fruit-vegetable-production/vegetable-fruit-news>

Maryland Fruit & Vegetable Farm Blog: <https://blog.umd.edu/umefruitveg/>

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New Jersey Agricultural Experiment Station: <https://njaes.rutgers.edu/ag/>

Fact Sheets and Bulletins: <https://njaes.rutgers.edu/pubs/>

Plant & Pest Advisory: <https://plant-pest-advisory.rutgers.edu>

Mid-Atlantic Commercial Vegetable Production Recommendations: publication E001
<https://njaes.rutgers.edu/pubs/publication.php?pid=e001>

Rutgers Pest Management Office: <https://pestmanagement.rutgers.edu/>

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Rutgers Vegetable Working Group Directory

For complete listing and contact information see:

<https://nj-vegetable-crops-online-resources.rutgers.edu/> and go to “members” section.

Rutgers NJAES Plant Diagnostic Lab and Nematode Detection Service

<https://njaes.rutgers.edu/plantdiagnosticlab/>; rutgerspdl@njaes.rutgers.edu

20 Indyk-Engel Way, North Brunswick, NJ 08902, phone: 732-932-9140, fax: 732-932-1270

Rutgers Soil Testing Lab <https://njaes.rutgers.edu/soiltestinglab/>

57 US Highway 1, New Brunswick, NJ 08901, phone: 848-932-9295, soiltest@njaes.rutgers.edu

Rutgers NJAES Pesticide Safety Education Program

<https://pestmanagement.rutgers.edu/PAT> (pesticide manuals, record forms, regulations, and safety)

<https://pestmanagement.rutgers.edu/worker-protection/> (WPS training videos and regulations),
phone 848-932-9802

Rutgers NJAES OCPPE Pesticide Applicator Certification Exam Registration (PACER)

<https://pacer.rutgers.edu/index.php>, phone: 848-932-9271 Option 7; email: pacer@njaes.rutgers.edu

State Extension Information

PENNSYLVANIA

The Pennsylvania State University

Penn State Extension, including publications, fact sheets, and more: <http://extension.psu.edu>

Mid-Atlantic Commercial Vegetable Production Recommendations: publication AGRS-028:

<https://extension.psu.edu/mid-atlantic-commercial-vegetable-production-recommendations-sections> and

<https://extension.psu.edu/catalog/product/view/id/21333/s/commercial-vegetable-production-recommendations/>

Penn State Vegetable Production: <https://extension.psu.edu/forage-and-food-crops/vegetables> (click on the “News” button to see recent articles related to vegetable and small fruit production)

Penn State Vegetable Team Directory

For a complete listing and contact information of Extension offices throughout Pennsylvania, see:

<https://extension.psu.edu/county-offices>

Plant Disease Clinic: <https://plantpath.psu.edu/about/facilities/plant-disease-clinic>

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VCE Publications and Educational Resources: <https://ext.vt.edu/agriculture.html> and Mid-Atlantic Commercial Vegetable Production Recommendations: publication 456-420 <https://www.pubs.ext.vt.edu/>

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Abbreviations and Acronyms

Units of Measurement

| | |
|-------|------------------------|
| /A | per acre |
| bu | bushel(s) |
| °C | degrees Celsius |
| cc | cubic centimeter(s) |
| cu ft | cubic foot (feet) |
| cu yd | cubic yard(s) |
| cwt | hundredweight |
| d | day(s) |
| °F | degrees Fahrenheit |
| ft | foot (feet) |
| fl oz | fluid ounce(s) |
| g | gram(s) |
| gal | gallon(s) |
| gpm | gallons per minute |
| h | hour(s) |
| in | inch(es) |
| lb | pound(s) |
| min | minute(s) |
| mph | miles per hour |
| oz | ounce(s) |
| ppm | parts per million |
| psi | pounds per square inch |
| pt | pint(s) |
| qt | quart(s) |
| sq ft | square foot (feet) |
| tbs | tablespoon(s) |
| tsp | teaspoon(s) |
| wk | week(s) |
| yr | year(s) |

Product Formulations

| | |
|----|-----------------------------|
| A | acid |
| CS | capsulated suspension |
| D | dust |
| DF | dry flowable |
| DP | dry prill |
| DS | dry salt |
| E | emulsion |
| EC | emulsifiable concentrate |
| ES | emulsifiable suspension |
| EW | emulsion in water |
| F | flowable |
| FC | flowable concentrate |
| FL | fluid |
| FM | flowable micro-encapsulated |
| G | granule |

Product Formulations (*continued*)

| | |
|-----|----------------------------------------|
| L | liquid |
| LC | liquid concentrate |
| LF | liquid flowable |
| LFR | liquid fertilizer ready |
| LV | low volatile |
| ME | micro-encapsulated |
| OF | oil formulation |
| SC | spray concentrate, soluble concentrate |
| SE | suspoemulsion |
| SG | soluble granules |
| SL | soluble liquid |
| SP | soluble powder |
| W | wettable |
| WBE | water-based emulsion |
| WDG | water-dispersible granules |
| WDL | water-dispersible liquid |
| WP | wettable powder |
| WS | water soluble |
| WSB | water-soluble bag |
| WSP | water-soluble packet |
| ZC | CS and SC mixture |

Other

| | |
|-------------------------------|-----------------------------------------|
| ae | acid equivalent |
| ai | active ingredient |
| AMS | ammonium sulfate |
| AP | at planting |
| COC | crop oil concentrate |
| FRAC | Fungicide Resistance Action Committee |
| HRAC | Herbicide Resistance Action Committee |
| IRAC | Insecticide Resistance Action Committee |
| K | potassium |
| K ₂ O | available potash |
| MoA | mode of action |
| MSO | methyated seed oil |
| N | nitrogen |
| NIS | non-ionic surfactant |
| OLF | other labeled formulations |
| OMRI | Organic Materials Research Institute |
| P | phosphorus |
| P ₂ O ₅ | available phosphoric acid |
| PHI | Pre-Harvest Interval (in days) |
| REI | Restricted Entry Interval (in hours) |
| TR | Toxicity Rating |
| WSSA | Weed Science Society of America |